



1963

# Identification in Psychotherapy as Measured on a Problem Solving Task

Marv L. Meyer

Loyola University Chicago

## Recommended Citation

Meyer, Marv L., "Identification in Psychotherapy as Measured on a Problem Solving Task" (1963). *Dissertations*. Paper 706.  
[http://ecommons.luc.edu/luc\\_diss/706](http://ecommons.luc.edu/luc_diss/706)

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Dissertations by an authorized administrator of Loyola eCommons. For more information, please contact [ecommons@luc.edu](mailto:ecommons@luc.edu).



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License](https://creativecommons.org/licenses/by-nc-nd/3.0/).  
Copyright © 1963 Marv L. Meyer

IDENTIFICATION IN PSYCHOTHERAPY AS MEASURED  
ON A PROBLEM SOLVING TASK

By

Marv L. Meyer

A Dissertation Submitted to the Faculty of the Graduate School  
of Loyola University in Partial Fulfillment of  
the Requirements for the Degree of  
Doctor of Philosophy

June  
1963

## FOREWARD

At the outset, it is desirable to place the emphasis of this study<sup>1</sup> in proper perspective. The psychotherapeutic process is seen as essentially a deep emotional experience for the patient brought about through the relationship between the patient and his therapist, the deeper experiences mediated by the transference. Hence, this study is not an attempt to verify the various "objective" or "rational" approaches in psychotherapy, such as the learning theory approaches currently coming into vogue. White (1948) expresses the view as follows:

Psychotherapy does not take place primarily in the sphere of intellect. Its basic principle is, as Alexander expresses it, 'to reexpose the patient, under more favorable circumstances, to emotional situations which he could not handle in the past.' The patient must 'undergo a corrective emotional experience,' and his 'intellectual understanding of the genetics has only an accessory significance.'<sup>2</sup> Psychotherapy is designed to bring about learning, but it cannot get anywhere by the lecture method. Its sphere of operation is the patient's feelings. (1948, p. 316).

The position taken in this study is that what distinguishes a trained psychotherapist from other disciplines engaged in helping troubled people, i.e., religious healers, physicians, thought reformers, (Frank, 1961) is his "insight" into the feelings of people and the dynamics of behavior (Munroe, 1959). These insights may be summarized under the term "diagnosis." Hence, it is the psychotherapist's "diagnostic skills" which help him tailor his therapeutic approach to the special requirements of a kind of person who has developed in his unique way by adaptation to his individual needs and resources.

---

<sup>1</sup>This investigation was supported by a Public Health Service fellowship (MPM 15,884) from the National Institute of Mental Health, Public Health Service. Facilities were made available at the Loyola Psychometric Laboratory by Dr. H. J. A. Rimoldi and at the V.A. Mental Hygiene Clinic by Dr. B. Gold.

<sup>2</sup>Quoted from Alexander, et al., 1946, pp. 66-67.

The general aim of the study then, is to find new insights into the psychotherapeutic process which will enhance the practioners "diagnostic skills" (insights).

Freud remarked that the therapist enters into an alliance with the ego of the patient for the purpose of helping it confront more directly the demands of the id and superego (Freud, 1927; Munroe, 1959). Freud later clarified that under the term "ego" he had in mind "a coherent organization of mental process" (1927, p. 15). "This ego includes consciousness and it controls the approaches to motility..." (Freud, 1927, p. 15). It follows then that the alliance, the relationship, between patient and therapist is intimately bound up with the mental processes, the approaches to action. But do we observe alliances formed by two individuals who have strikingly different approaches to action? In the clinical situation, two people enter into a relationship under highly unusual conditions. The question may properly be asked, "what happens"--do these two individuals remain different in their conscious approaches to motility and work together despite these differences, or does one of the members alter his approach so that he acts more similar to the other. One may make observations concerning this ego function and explore to what extent this difference in approach is associated with judgments of therapeutic change. This is the problem of the present investigation.

## ACKNOWLEDGEMENTS

The writer would like to take this opportunity to extend his appreciation to all those persons who either cooperated in or offered consultation on this study. Without the facilities made available at the V.A. Mental Hygiene Clinic, Mary Thompson Clinic, and Illinois Mental Health Center this study could never have been accomplished. Accordingly thanks are extended to the Chief Psychiatrists of these clinics, respectively, Drs. Louis Halprin, Phaddeus Kostrubala, and Arthur Woloshin. The Chief Psychologists of these clinics were instrumental in gaining permission and cooperation from the various staff members, and their assistance was greatly appreciated. Gratitude is expressed to Drs. Bernard Gold, Thomas McGee, and Helen Sunukjian. Permission to use the scales employed in this study was granted by Drs. Wm. U. Snyder and Maurice Lorr.

The study required the personal cooperation of many individuals--therapists, patients, and people serving as criterion subjects. Often, considerable time and inconvenience was requested of these persons to participate in the research and appreciation for their effort is hereby extended.

Many people contributed in various ways to the conceptual development of this thesis, professors at Loyola, colleagues, and people whose written works have been read but not cited, but regrettably it is not possible to enumerate each person. Frequent discussion and consultation, especially in the embryonic stages of the study, was offered by Dr. Irv Roth of the Research Department of the Mental Hygiene Clinic. Perhaps without Dr. Roth's encouragement this study would not have materialized, and the writer wishes to express his sincere gratitude. Special thanks are due Dr. Horacio J. A. Rimoldi and Mr. John Haley for their patient clarification of many statistical problems.

Without the continual encouragement, genuine interest in the research, and counsel of Dr. Frank J. Kobler and Dr. Horacio Rimoldi, co-major advisors to this study, the investigation could not have been completed. The author wishes to express his heartfelt gratitude to both of them.

The author is especially indebted and grateful to Dr. Rimoldi for his participation in the design of this experiment, for the actual development of the method of analysis used in the study, and for his graciously allowing the experimenter the use of the facilities of the psychometric laboratory at Loyola. Dr. Rimoldi was also sponsor of the researcher for obtaining the Research Fellowship under whose support this study was conducted. The author wishes to express his gratitude to the National Institute of Mental Health for their support.

Thanks are due to Mrs. Robert Beers for her very efficient typing of the thesis.

Finally, the author would like to thank his wife, Eileen, for her assistance, frank criticism, and encouragement throughout the course of this research.

# TABLE OF CONTENTS

Chapter	Page
FORWARD . . . . .	ii
ACKNOWLEDGEMENTS . . . . .	iv
LIST OF TABLES . . . . .	vii
I STATEMENT OF THE PROBLEM . . . . .	1
II REVIEW OF RELATED LITERATURE . . . . .	12
1. The Independent Variable--Psychotherapy . . . . .	13
A. Psychotherapy as a Cognitive Process . . . . .	13
B. Psychotherapy as a Therapist-Patient Relationship . . . . .	20
2. The Dependent Variable--Problem Solving Behavior . . . . .	31
A. Problem Solving Process . . . . .	31
B. Some Factors Influencing Problem Solving Performance . . . . .	51
3. Summary . . . . .	61
III EXPERIMENTAL DESIGN AND PROCEDURES . . . . .	66
IV RESULTS . . . . .	82
V DISCUSSION . . . . .	90
VI SUMMARY AND CONCLUSIONS . . . . .	97
Appendices	
I The Rationale and Development of the Real-Life Problems . . . . .	99
II The Real-Life Problems . . . . .	108
III Recording Forms . . . . .	122
IV Issues Encountered and Their Solution . . . . .	137
BIBLIOGRAPHY . . . . .	153

# LIST OF TABLES

Table	Page
1 Mean and Standard Deviation for Age and Education . . . . .	70
2 Diagnoses of the Patient Sample . . . . .	72
3 Mean and Standard Deviation of Cards Selected by Subjects on Problems A, B, and C . . . . .	82
4 Means and Standard Deviation of Cards Selected for Groups of Patients on Problems A, B, and C . . . . .	83
5 Student t Values for Cards Selected on Problems A, B, and C . . . . .	85
6 Greatest Differences on Ranked Cumulative Utility Indexes Between the Three Groups Of Subjects on Problems A, B, and C . . . . .	86
7 Mean Differences, the Standard Error of the Differences, and t Value for Two Utility Scores for the Patient Groups on Problem B . . . . .	88
8 Mean Differences, the Standard Error of the Differences for the Two Sequence Scores for the Patient Groups on Problem B . . . . .	89



## CHAPTER I

### STATEMENT OF THE PROBLEM

The purpose of this study is to explore the way an individual's approach to a simulated real-life problem is affected by a course of psychotherapy. The emphasis in this investigation is not primarily on the final solution an individual offers, but rather the emphasis is on the particular manner in which he approaches the problem. A rather unique aspect involved in the investigation of a person's 'way of going about' real-life problems is that it may contribute to a fuller understanding of at least one of the dimensions of the psychotherapeutic process (patient-therapist relationship).

Evidence has accumulated from studies employing tape recordings of therapeutic interviews which suggests: 1) that people do alter their conceptualization of a personal problem during a course of treatment (Curran, 1945); 2) that problem solving approaches to personal-life problems can be predictive of judged "success" or "failure" of a course of psychotherapy (Kirtner, 1958); and 3) that the way an individual approaches his personal problems suggests how he will utilize his opportunity for psychotherapy (Roth, 1960). This study is an attempt to go a step further. This investigation will employ a task distinctly separate from psychotherapy to characterize an individual's approach to the kinds of problems for which people seek psychological treatment. To do this, the Rimoldi Technique of Problem Solving Process Analysis<sup>3</sup> will be employed. The Rimoldi method (1955) characterizes a person's approach to a problem by the questions he asks to arrive at a solution to the problem.

---

<sup>3</sup>Herein referred to simply as the Rimoldi technique or method.

From the descriptions of the approaches to these tasks obtained using the Rimoldi technique, the researcher will explore: (1) whether the approaches to the problems change as a result of a course of psychotherapy, (2) whether there is a significant difference between certain kinds of problem solvers (descriptively speaking) and judgments of change resulting from the treatment.

If there are changes in the approach which patients use in dealing with the problems, and Curran's (1945) study suggests that this may be expected in at least some of the people, then the question arises, "how do they change?"

Laboratory experimentation has provided evidence that efficiency on a problem solving task is influenced by a subject's affective state (Beier, 1951; Ainsworth, 1958; Harris, 1950; Kempler, 1962; Cowen, 1951. See the Review of Related Literature for details of these studies.) At the same time, most clinicians agree that, at least in the functional disorders, the psychopathology is a manifestation of severe emotional disharmony resulting from stress (Frank, 1961, pp. 19, 225). That is, presumably the patient who seeks psychiatric assistance is to some degree in a state of affective disharmony. Assuming that this emotional disharmony can be recognized by the person and reported as discomfort, there are studies which indicate such emotional disharmony alters with treatment. Kauffman and Raimy (1949), for example, conducted a study of treatment in which they demonstrated that changes do occur during treatment on a discomfort-relief quotient. Following this, Thetford (1949) presented evidence that movement on a discomfort index may be successfully used as a rough measure of progress in counseling. Granted the patient is under emotional stress, it follows that his efficiency in problem solving should be altered from what it would be if his emotional life was more harmonious. The studies just mentioned further suggest that a course of

psychotherapy that is effective in bringing about emotional integration should lead to more efficient problem solving behavior. From this point of view then, a meaningful dimension on which to evaluate change in problem solving is that of efficiency.

One may think of varying degrees of problem solving efficiency. For example, the laboratory studies mentioned above (Beier, et cetera) suggest a person may have a particular potential in terms of his problem solving ability, but that his affective state may not allow the person to realize this potential. But we can also think of problem solving behavior on an expert-non-expert (trained-untrained) dimension (Rimoldi, Devane, & Haley, 1959). With the expert-untrained dimension in mind, Gunn developed problems from psychiatric case histories, and employing the Rimoldi technique to analyse the subjects' approach to the problems, found different processes clearly distinguished the experts from the nonexperts (1962).

Bandura (1959; 1961) has demonstrated in a number of experiments that "a certain amount of incidental learning may be expected to occur through imitation" (1961b, p. 311). He strongly suggested that people imitate much of the behavior of their "models" unwittingly. Many studies of psychotherapy (Rosenthal, 1955; Murray, 1956; Bandura, 1960; Lennard et al., 1960) indicated various characteristics of the therapist seemingly are imitated to some degree by the patient. For example, the study by Rosenthal (1955) indicated that the values of patients were more similar to their therapists after treatment was completed than they were before treatment began. Perhaps less dramatic evidence could be obtained from anyone who has listened to a series of tape

recordings of treatment sessions conducted by a novice<sup>4</sup> therapist. They would quickly confirm the idea that a client soon begins to use the same terms as his therapist to describe his internal and external behavior. With this evidence in mind, it seems reasonable to suggest that if change in problem solving approach occurs in the patients, their approach may become more similar to the approach of their individual therapists. In short, what is suggested in this study is that it is possible for the patient to change by at least two distinct degrees: he may become more efficient in his problem solving behaviors; or, he may assimilate his therapist's way of approaching problems, and hence become more "expert" in his approach to the tasks. He also may actually do both--become more efficient and more expert in his performance.

The third major problem for this study is to evaluate the kind of change which takes place in terms of efficiency or expertness. If the patient becomes more efficient, this indicates he is in more agreement with others of his same background.<sup>5</sup> If he becomes more "expert," this suggests he is assimilating some of the characteristics or attitudes of his therapist, for to become expert he must be in agreement with the approach used by therapists.

Up to this point the problem which this study will investigate has been

---

<sup>4</sup>This is less obvious in sessions conducted by an experienced therapist because he learns to remain in the "semantic area" of his patient to facilitate communication.

<sup>5</sup>McQuitty (1954) has developed a theory of psychological well-being based on the assumption that personality characteristics which are most common to community persons are indicative of mental health. He states that, "The pattern of characteristics which reflects maximum mental health is the common or typical characteristics, and a person is mentally healthy to the extent that he conforms to this single, typical pattern." (p. 3). As the reader will clearly see later, the concept of efficiency in this study is really an indication of a subjects conformity to the typical pattern found in a community population, and hence may in this framework be seen as an indicator of mental health.

presented from essentially a research or empirical point of view. One might, however, attempt to explore the meaning the study holds for the various theories of psychotherapy. The discussion will be limited to client-centered, Freudian, and learning theory concepts. Despite the contention of many investigators that these theories have not provided the researcher with a useful framework for guiding research practice (Berdie, 1957; Thorne, 1957), it may still be fruitful to look to them for hints and see what implications may arise from the research herein presented.

It was pointed out in the foreward that the study is not an attempt to verify the implications inherent in holding a learning theory framework within which to conceptualize the therapeutic process. Yet, one cannot help but see some obvious implications and similarity between the present investigation and the framework of the learning theorist. Mowrer's discussion of his two-factor learning theory and the neuroses is particularly relevant. Mowrer says of the neurosis:

"The neurotic is an individual who has learned how not to learn. What such a statement means is that the neurotic is a person in whom solution learning (cognitive)<sup>6</sup> is directed against sign learning (emotional)\*, instead of these two forms of learning functioning harmoniously and complementing each other." (1953, p. 147)

Mowrer continues and states that although the neurotic's principal complaint is that of emotional suffering, "the most effective therapeutic attack is made in the area of problem solving behavior." (1953, p. 148) To summarize Mowrer's position, "the fundamental task of psychotherapy is not that of emotionally reeducating the patient but of helping establish problem solving habits which will enable emotions to operate as they are normally intended to." (p. 14).

---

<sup>6</sup>Material within parenthesis which have an asterick (\*) are added by the writer throughout this report.

It would appear that an important element to include in an evaluation of change resulting from therapy for this learning theorist at least, would be the problem solving approach used by a patient. Despite the fact that none of the therapists employed in this study (with the possible exception of one) formulate psychotherapy in purely learning theory terms, and hence may not be particularly concerned with the patients problem solving behavior as such, it will be of interest to people of this framework to see if such changes do unwittingly occur (Bandura, 1961; Kanfer, 1961). That is, using Mowrer's formulation, the therapist would concentrate his efforts on the patient's problem solving techniques, and ignore the neurotic complaints or symptoms. In so doing if he were successful, the problem solving habits of the patient would alter. Thus, the prediction would be that successful patients become more effective in problem solving while the unsuccessful patients would not.

In his discussion of the process of therapy from a client-centered point of view, Rogers (1951, pp. 142-147) suggests the process is "best described in terms of greater differentiation of perception,<sup>7</sup> and more adequate symbolization." (p. 147). In his discussion, Rogers points out this increased ability to differentiate, supposedly resulting from a course of therapy, may be described in a problem solving framework (p. 146). For instance, a changing patient's increased differentiating ability should be demonstrated in his approach to the various problems used in this study, perhaps by using fewer, but more select questions. Following Rogers logic, one would hypothesize the patient who changes in treatment is able to perceive the

---

<sup>7</sup> Rogers use of the term differentiation does not simply mean the perception of increasingly minute aspects. "It means separating out, and bringing into figure, any significant perceptual element which has heretofore been unrecognized." (p. 145)

various items of the problems presented to him in a less rigid and fixed manner and consequently his approach will alter. That is to say, if it is found that patients who have been judged to have changed actually alter their problem solving approach, while others do not, it would indicate the patients are more discriminating. Such a finding would offer credence to Rogers' view.

For the psychoanalytically oriented psychotherapist, "it is a goal of therapy to transform ego-rigidities, which result in difficulties of adaptation, into mobile ego achievements." (Rapaport, 1951, p. 394). One of the activities under the direction of the ego is the problem solving process (Rapaport, 1951, p. 375, Footnote) which may be influenced by an individual's rigidity of adaptive ability. Thus, under Freud's broad concept of ego<sup>8</sup> we would predict that the problem solving behavior of an individual would alter with treatment, and this change would be in the direction of flexibility. However, Freud was concerned with primarily only one function of the ego, that of defense. When he was concerned with ego alteration he was really concerned with a modification of the patient's rigid ego defenses.

The ego has gone through a number of conceptual elaborations since Freud, one of the more important of which is Hartmann's conception of conflictful vs. conflict-free ego spheres (1958, p. 8). Hartmann distinguishes ego functions as either being affected by conflict or as not being influenced by conflict, and hence as being part of the conflict-free ego sphere. With this distinction in mind, it becomes important to evaluate an ego function as being either conflict-free or as being affected by conflict, either with the id or the superego. The distinction becomes important, theoretically at

---

<sup>8</sup>Freud defines ego as "a coherent organization of mental process." (1927, p. 15).

least, for therapy in that Freud stated that the therapist enters into an alliance with the ego of the patient for purposes of helping it confront more directly the demands of id and superego (Monroe, 1959). This position of the therapist is still held in psychoanalytic treatment (Menninger, 1958, p. 127). It is imperative that the therapist does not align himself with the conflictful part of the ego--the alliance is to be with the conflict free sphere.

Relative to this study, the question arises as to whether problem solving process is in the conflict free or the conflict affected ego sphere. In the former situation, the prediction would be that no change would occur with treatment; in the latter case, the problem solving would be seen as effected by conflict and hence alterable. If the problem solving process is in the conflict-free sphere, the consistency of approach is a result of automatization.<sup>9</sup> Hartmann states:

"Not only motor behavior, but perception and thinking, too, show automatization. Exercise automatizes methods of problem solving just as much as it does walking, speaking, or writing...The conception of a thoroughly flexible ego is an illusion; yet normally even well-established actions and methods of thinking are not completely rigid. Besides the adaptedness implicit in their use, automatized activities have a certain leeway (of varying latitude for adaptation to the momentary situation) (1958, p. 88).

If, on the other hand, problem solving process is conflict-affected, the consistency may be seen more as rigidity.

Thus far, the discussion has concerned problem solving process in relation to the structure of the ego. Another way of viewing the relationship between real-life problems and the ego is in terms of the content of the problems, and not the person's approach to the situation. Perhaps the content and not the problem solving process will be the determining factor as to whether the problem solving is in the conflict-free ego sphere or not. With this

---

<sup>9</sup>By this term is meant the processes function automatically.



conception, it would be expected that perhaps the problem solving behavior will vary according to the problem content. Content which places a problem in the conflict-free sphere should be approached more adequately than a problem which is composed of material involved in conflict.

From this point of view then, perhaps this study will further understanding of the ego functions in relation to the psychoanalytic concepts of conflict affected and conflict-free. For example, if it is observed that patients are inconsistent in their approaches to problems before treatment and improve on their poorer performance but not on their higher performance after treatment, it would suggest the poorer problem is in the conflict sphere and improved as the conflict was resolved. The lack of change on the problems which were approached more adequately initially would suggest that the problems were not part of the conflict sphere of the ego, and hence represent the person's general approach. They could not be expected to change, unless perhaps some less severe conflict affecting the performance of them had not been resolved by treatment yet.

The study may shed further light on a different aspect of psychoanalytic treatment also--the interactional role of the therapist and patient.

Glad discusses this aspect of treatment as follows:

The therapist is skilled in providing the unskilled patient with circumstances and understanding which promote personality reorganization. In a sense the analyst says, 'If you become like me you will be well.' This parent-child relationship, with the parent commenting on, explaining, and managing the patient's movement, is consistent with the analytic theory that successful personality development occurs as a part function of identification with an adequate, like-sexed parent. The patient identifies with the analyst as '...someone who is looked upon as a useful member of human society, who is able to be happy.'<sup>10</sup> (1959, p. 67)

The third hypothesis of this thesis is directly related to this theoretical

---

<sup>10</sup>Glad takes this quote from Schilder, 1930, p. 454.

idea. That is, the third hypothesis is a test of therapist identification. How this may be expected to come about, from a more phenomenological point of view, can be seen from the following description of the interaction between therapist and patient. Menninger writes:

Usually the patient does not clearly understand just how this ameliorative process (psychotherapy)\* is to occur or to be effected. But having told the doctor the nature of his distress, he is prepared for a response from the doctor in the direction of identifying or explaining psychological connections with this distress. The patient complains, for example, of attacks of headaches; the physician may not need to say that perhaps these headaches are associated with disturbing experiences; the patient often takes this for granted or, if he does not, will assume it as a hypothesis. When the doctor asks him what events seem to have precipitated the headaches, the patient does not (usually) describe falling down the stairs or being hit on the head with a brick; he mentions the visit of his mother-in-law, or the approach of certain examinations. This gives the doctor a clue, and he asks more pointed questions, which in turn give the patient directives for further recollection or organization of his experiences in a way that leads to an explanation of the symptom. (1958, p. 25)

It appears that the real-life problems employed in this study should tap this interaction directly and hence the design of the experiment for the third hypothesis should add significantly to this formulation of psychoanalytic theory.

In summary, the purpose of the foregoing discussion of the theoretical positions of Rogers, Freud, and Mowrer has been to raise questions of a theoretical nature and to suggest theoretical explanations for the various possible outcomes of this study. Mowrer's learning theory as well as Rogerian theory would hold that the successfully changed person would alter his approach to problems while others would not. The main difference, however, between the two positions is that changes according to Rogers would be due to better differentiation while the changes in problem solving would be causal in bringing about better integration according to Mowrer. Psychoanalytic theory, on the other hand, would offer the possibility of explaining less inclusive changes

and more variability in the problem solving behavior. Changes in problem solving processes could only be expected if the problem was in the conflict sphere of the ego, and if the conflict with which it was associated was in some degree resolved. Freudian theory would also suggest the changes would be mainly due to identification with the therapist rather than finer differentiation or harmonious two-factor learning.

In summary, the problem explored in this study may be stated with the following three different null hypotheses:

(1) There will be no difference between the patient's approach to the real-life problems at the beginning of therapy and his approach at the end of the experimental period.

(2) There will be no significant difference between a patient's way of approaching real-life problems and judgments of therapeutically derived change.

(3) If change is measured on the real-life problems, this change will not be in the direction of his therapist, but rather it will be in the direction of effectiveness; that is, he will become more similar to community subjects.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

The purpose of this chapter is to review the literature specifically related to this study. It is not intended to give a comprehensive review of the voluminous literature on psychotherapy, which has increased, using the Annual Review of Psychology as an index, about 20 times between 1949 and 1961 (Seeman, 1961). Readers interested in more inclusive coverage are referred to the reviews by Snyder (1947),<sup>11</sup> Seeman and Raskin (1953), Rogers (1951, 1954, 1961), Rotter (1960), Reznikoff and Toomey (1959), Zax and Klein (1960), Eysenck (1961), Seeman (1961), Frank (1961), Strupp (1962), Brayfield (1963), and Wirt (1963).

In a similar manner, the investigator has been selective in reviewing the extensive literature on problem solving and by no means does the experimenter imply that this is an exhaustive survey of problem solving. Only studies specifically related to this research are reviewed. The reader is referred to the following surveys for more comprehensive coverage of the literature on problem solving: Duncan (1959), Thomson (1959), Bruner, Goodnow, and Austin (1956), Harris and Schwahn (1961), Ray (1955), Furneaux (1961), Payne (1961), Kendler and Kendler (1961), Gagne (1959), Chown (1959), Johnson (1950, 1955), Humphrey (1951), and Vinacke (1952).

The literature related to this study will be discussed under the two broad headings of independent and dependent variables. Subheadings of the

---

<sup>11</sup>Snyder not only reviews the experimental work up to 1947, but also raises many theoretical issues, perhaps for the first time.

first category will be (A) Psychotherapy as a Cognitive Experience and (B) Psychotherapy as a Therapist-Patient Relationship, and for the second category subheadings will be (A) Problem Solving Process, and (B) Some Factors Influencing Problem Solving Performance. The independent variable, psychotherapy, will be considered first.

# 1. The Independent Variable--Psychotherapy

A. Psychotherapy as a Cognitive Experience. The past twenty years has been a period in which psychologists have demonstrated their fascination in and concern for psychotherapy by exploring it experimentally from a variety of vantage points.<sup>12</sup> From the beginning the psychologist saw psychotherapy and counseling as a learning process (Seeman and Raskin, 1953; White, 1948). The earliest attempt to objectively spell out the steps of this process was made by Curran (1945).

Curran (1945) analyzed the twenty tape recorded interviews conducted by a client-centered counselor with Alfred in "an attempt to determine by objective analysis the factors which go into the process of therapy and the functions of the personality which bring about this process" (p. 20). In the study Curran employed three methods of analyzing the data: a) the Interview Content Analysis, b) the Problem Solving Analysis, and c) the Insight Evaluation Analysis. The last two methods of analysis are particularly relevant for the present study. The Problem Solving Analysis was intended to indicate the different problems with which Alfred was faced. Furthermore, whenever a relationship was seen between two problems which were previously seen as

---

<sup>12</sup>Perhaps the development of the tape recorder has been the most influential impetus (Moreno, 1947) for it was after the tape recorder became available that psychotherapy came under the scrutinous eye of the psychologist.

distinctly separate, this "insight" was indicated. Such relationships came under closer scrutiny in the Insight Evaluation Analysis. Curran found that as Alfred faced problems, he found them related and to form patterns. Although when counseling was initiated Alfred saw 25 distinctly different problems, by the end of 20 interviews these problems became related so that Alfred spoke only of 8 problems. Curran suggested that as negative emotion drops, there is a corresponding drop in the stating of problems. He accounts for the decrease in number of problems stated by the fact that they become related to each other when insight becomes predominant (p. 116).

Curran's findings, based on only one subject, must accordingly be viewed with caution. Perhaps Alfred was an exception or perhaps the phenomenon reported by Curran takes place only in nondirective therapy. However, the suggestion is that people who are successful participants in therapy do alter their approach to problems by moving from a limited, rigid, perception of the problem to a broader, more flexible, and more integrated approach. Notice that Curran attributed the change to alteration in the affective sphere. In the present study, it will be possible to clarify further whether affectivity is the aspect of behavior which leads to change or whether the change is perhaps better explained in terms of learning (the identification process), or perhaps the alteration in approaches to personal problems are due to both--changes in the emotional life of the individual and learning, perhaps unwittingly, from the therapist how to approach real-life problems.

Some seven years later<sup>13</sup> Haimowitz and Haimowitz (1952) conducted an outcome study which touched upon the present problem indirectly. In their study they employed 56 people including a "normal" control group, whom they tested with the Rorschach before and after therapy. They found significant gains made in the quality of intellectual functioning after the course of non-directive counseling. Seemingly what they meant by gains in quality of intellectual functioning was a decrease in neurotic signs, overly high control and an increase in the constrictive process (F% 50 or over) (p. 87).

It is difficult to understand why neurotic signs on the Rorschach should disappear while the person becomes more constricted (perhaps another though different neurotic sign). It is possible that what happened was the individual learned to inhibit certain impulses or perceptions, and thus not reveal his neuroticism as readily at the expense of becoming narrower. But this would be contrary to theories of psychotherapy. Of interest in relation to this study is the fact that changes were registered in the cognitive sphere, and it was in the direction of rigidity. We will discuss this finding later in terms of theoretical expectations (See page 5-8).

Rakusin (1953) conducted another Rorschach investigation that is related to the mode of approach to problem solving. He attempted to correlate estimates of variability derived from the Rorschach administered before treatment with changes in approach to problems in therapy. The approach to problems in therapy was rated on a 7 point scale at the beginning and at the end of

---

<sup>13</sup>In the interim, Raimy (1948) focused on learning about the self as being the key type of learning in therapy and found that with individuals judged as successful therapy cases, there was a shift in the concept of self to a more positive self concept. Because this study is very specific and not directly related to problem solving process, it is not included directly in this review.

treatment. Although he found the ratings reflected change in the client's approach to his problems, the Rorschach test was not predictive of the change.

In his recent book, The Rorschach Experiment, Beck (1960) has much to say about the use of the Rorschach as a prognostic indicator of psychotherapeutic change. Beck emphasizes three different measures on the Rorschach in his discussion of "Who can change?". These Rorschach signs are Approach, (Ap), Sequence, and Experience. Only the first two will be discussed in this survey.

Beck states:

The observations concerning Approach and Sequence refer to two variables that are primarily the work of the intellect. They are thus among the test's indications as to the condition of the ego in its role of consciously attending to the environment and controlling the subject's intellectual method within orderly ranges. Insofar as these two variables reflect the ego's facility in modifying the individual's course, they tell us something about the subject, about his plasticity, a character trait critically important in treatability. (1960, p. 204).

Beck continues with the following observations:

Inspecting now the Ap patterns in the light of personality patterns whose changability is known, here is what we find. The persons who excessively, in instances exclusively, accent the major detail (Ap = (W) D! Dd; or W D! (Dd) ) have great difficulty in changing. They are either very limited, by reason of intelligence, in the ability to attend to anything other than the obvious--this is the person who proverbially cannot see beyond the end of his nose--or they must concentrate on and cling to what is most plain and tangible. They dare not stray. They are, therefore, unable to see the woods for the trees. When in his test pattern the subject overaccents the whole (Ap: W! (D) Dd) he is again handicapped, being now unable to see the trees for the woods. He cannot break up his mental field into its meaningful components...In either event the ideas which should shape up in a therapeutic effort fail to do so. They are all persons who cannot learn, who are not likely to change. (1960, pp. 202-203)

In a similar manner, Beck explains that those whose selective observations excessively accent the minute "dare not change." However, Beck cautions that "Each (approach)\* must be judged within the frame of reference of the patient's whole reaction pattern. Only from this sphere of reference can we know its significance in judging treatability." (1960, p. 203) "As a generic indicator



then, Ap tells how perceptive the person is as he attends to the data of varying significance in his field" (1960, p. 203).

Turning to Sequence, Beck states:

Sequence gives evidence, at one extreme, of the fixity of subject's intellectual procedures and, at the other, of its unregulated disorderliness. When the patient unvaryingly follows a W, D, Dd sequence for the ten test cards, he is too set logically in his ways, cannot relax adequately for purposes of thinking out alternative ways of working out his problems. It is a trait which makes him impermeable to the perceptions which the treatment process would open up. Learning is forestalled. For the persons at the other extreme, the thinking carries little or no predictability. It is arbitrary in its lack of orderliness. Hence, these persons cannot lay a grip on the ideas which are the new perceptions of a treatment effort. The patient continues disorganized. He is not changing.

The optimum sequence, that affording best promise for response in therapy, actually departs within certain recognizable limits from what may at first thought appear to be the best. The empiric facts are that the healthy, those with more "give" in their mental structure, show variations in the order in which they attend to W, D, Dd, in the respective test cards. They are relaxed in their orderliness. These are the persons who can change, i.e., they can learn. An unvarying adherence to a norm in the Rorschach test--and one may so reason for any of the tests of clinical psychology--is not found in normals. The cliché is by now well known: the strictly "normal" is not normal. (1960, p. 204).

Beck concludes that:

The accessibility of the patient is the thing. That is, is the patient open to, can he be opened up, to ideas that will alter his way of seeing things? Can the treatment experience change him, and to what degree, from what he is in his illness. (1960, p. 206)

A more explicit recognition of the significance of approaches to difficulties in-therapy was formulated by Kirtner (1959). He related client's approaches to personal difficulties, as judged on a scale from initial tape recorded interviews, to judged success of treatment. By evaluating a client's method of approaching his problem in counseling, the investigator was able to predict successful clients and Kirtner demonstrated a relationship between technique of solving problems and length of therapy a patient engaged in. Kirtner also demonstrated it is possible to differentiate successful from

unsuccessful clients by characterizing their approaches to problems in therapy. Kirtner's study suggested the approach-to-problems dimension may be meaningful not only as a prognostic indicator of treatment potential, but also as a means by which a deeper understanding of the treatment process can be obtained.

Roth (1960) attempted to refine Kirtner's 5 types of approaches to personal life problems. He analyzed the approaches used by clients as judged from listening to tape recordings of initial interviews. After listening to 40 tapes, Roth was able to differentiate the aim of the problem solver from the way in which he structured the problem. He then developed scales of 6 different types of aims and three types of structuring. Using these scales for his analysis, Roth found he could relate the aim variable to outcome and duration of treatment but not the structure variable. Roth concluded that clients use their experiences in various ways and that possibly people may be assigned meaningfully to different therapists according to their mode of approaching personal life problems.

These very encouraging results obtained by both Kirtner and Roth are only offset by the tremendous amount of work involved in making reliable ratings. The rater must spend hours learning what to listen for as well as learn the complete scoring procedure. Furthermore, by rating initial interviews, it is not possible to see whether such approaches are fixed, are variable, or whether they change over a course of treatment.

A study more closely related to the present investigation was conducted by Magoon, Hoyt, Volsky, and Norman (1957). They attempted to study the effect counseling has on anxiety, defensiveness, and problem solving. They viewed personal problem solving as involving the following characteristics:

- A.) definition of the problem--what stands in the way of the goal;

B.) clarification of the problem--what information concerning the problem must be brought to the awareness of the individual and evaluated in terms of its relevance for the problem; and C.) proposal and selection of the course of action. They selected four areas in which client's problems frequently are found: (1) interpersonal relations, (2) family relations, (3) vocation, and (4) sex. Using these areas they broke the problems into the characteristics described above and developed 20 tests (5 for each area of client problems) for each characteristic step. The following tests were developed: "The Fact Elicitation Tests," "The Problem Definition and Solution Tests," and a "Logical Reasoning Test." These tests consisted in presenting a problem to the subject and allowing him to ask questions until he arrived at a solution.<sup>14</sup> Each test was then separately scored by a point system with various weights given to each question (points ranged from 0 to 3). Employing this method of analysing their data, the authors had difficulty distinguishing between the high and low criterion groups in their samples. The overall results of their experiment was negative; they were unable to demonstrate that, according to their scoring system and problems, problem solving improved with counseling. However, as the authors themselves admit, the counseling was extremely brief, with the median number of interviews being three! Secondly, they point out that their instruments have only tentatively established validity as indicators of the variables for which they are named. Thirdly, they had an extremely restricted subpopulation--college students in counseling. The experimenters did not attempt to explain or categorize the ways people solve problems, but they do suggest areas which may be covered in problem solving in personal life. They

---

<sup>14</sup>Notice the similarity between their method of collecting data and that used by Rimoldi (1955) with certain types of problems.

further suggest three steps which they felt (but did not confirm) were important to solving problems. Perhaps their biggest contribution to the problem is the implicit "don'ts." Their research suggests that to break the problem solving process into three different tests may not be an effective method of measuring problem solving process, and that arbitrary "logical" weighting of scores is not apt to differentiate people on the personal life dimension of problem solving. From the studies cited above (Curran, 1945; Rakusin, 1953) it seems quite clear that problem solving approaches may be expected to change with treatment. The problem is to find a method of testing and analysis which will reflect this change. The Rimoldi technique appears to offer such a refinement.

B. Psychotherapy as a Therapist-patient Relationship. It has been demonstrated that mode of problem solving is a meaningful area to be investigated in terms of psychotherapy. The discussion will consider the second aspect of this investigation: assessing the descriptions of patient's modes of problem solving in relation to the therapist's problem solving processes. That is, we want to observe if there is a closer relationship between these two modes of problem solving after having weekly therapeutic contacts.

Psychotherapists have been vaguely aware for a long time that much more goes on in therapy than just the patient's verbalizing of his problems and difficulties. Therapists speak of such things as "transference," "counter-transference," and "identification" indicating that the patient and the therapist both relate to one another in ways not easily explained. But it has been rather recently that any objective experimentation has been carried out to demonstrate that the therapist does in fact influence the patient unknowingly. The first objective study was conducted by Rosenthal in 1955.

Rosenthal (1955) undertook to test whether values change during psychotherapy and whether the patient learned to accept the moral values of the therapist. He suggested the values measured on the Allport-Vernon-Lindzey Scale of Values would not show change since they are not ordinarily at issue in psychotherapy, whereas moral values, often thought to be at the center of neurotic conflict, would alter. Rosenthal administered the Allport-Vernon-Lindzey Scale of Values and the Moral Values Q sample to both the therapists and their patients before psychotherapy. He repeated the tests with the patients after treatment.<sup>15</sup> The tests were not readministered to the therapists since it was felt they would not show any change. Rosenthal states, "It could have been hypothesized that the therapist also assimilated some values of the patient, but when it is realized that a therapist treats many patients at the same time, each holding a different set of values, then it seems doubtful that he can assimilate the values of all in any readily measurable way. At any rate, it was assumed in this study that the therapist's values were stable" (p. 432).

It took two years for Rosenthal to accumulate 12 patients who were tested before and after therapy. They were treated for a period of between 3 and 12 months, the mean length of treatment being 5 months. No psychotic patients were included. The Moral Values were evaluated by means of a forced frequency Q technique and it was composed of 60 items centering on sex,

---

<sup>15</sup>The patients were also given Frank's Symptom-Disability Check List, the Butler-Haigh Self-Concept items, from which was derived a modification of the Dymond Adjustment Scale. The Moral Values Q sort was developed by Rosenthal.

aggression, and authority.<sup>16</sup> Rosenthal found that moral values changed significantly (alpha .01, using Rho correlation) in the direction of therapist values suggesting modification if not profound alteration of the value system. As expected, no significant changes were recorded by the Allport-Vernon-Lindzey Scale of Values. Interestingly, patients who were judged to have gotten worse moved away from the therapists value system.

It is striking that at the time Rosenthal conducted his study (1953-55), therapists were very vocal concerning whether the therapist should impart his value systems onto his patients. The consensus of opinion appeared to be that the therapist was to deal with the emotional life of his patient. He was not to infringe upon the freedom of the person by teaching the patient his own set of values. The implication of Rosenthal's study, however, is that the changes took place unknowingly, and very likely as an indirect result of discussion in an atmosphere purposely void of moral connotations.

That the patient may improve by adopting the therapist's psychotherapeutic values is suggested by typical observations of terminal meetings in group psychotherapy. Often, after a course of group psychotherapy lasting no longer than 3 to 4 months patient's tend to adopt the therapist's role in trying to help the less effectively adjusted member(s) of the group to some satisfactory improvement. As Glad sees it, "the patients tend to become therapist-like in their relationship to other patients" (1959, p. 301).

In his book, Operational Values in Psychotherapy, Glad (1959) proposes

---

<sup>16</sup>The writer did not notice that the problems employed in the present study were developed around the same content as Rosenthal used. Perhaps this coincidence suggests consensual validity for at least the content of the problems since in all likelihood the rationale which lead to the selection of these problem areas was different than the rationale used by Rosenthal.

"that each theory (of psychotherapy)\* is a value system about the nature of personality maturity" (p. 236). Glad suggests "that client personality may be selectively modified by the interpretations of one value system in contrast to another" (p. 236). That is, certain patients are more likely to respond effectively to the interpersonal value system while others are more constructively responsive to the dynamic relationship value system. This responsiveness is in relation or terms of the value system! For partial varification of his viewpoint, Glad points to studies involving normals and one of schizophrenics.

Employing "normal" individuals, Smith and Glad (1956), Bourestom and Smith (1954), and Glad, Smith and Glad (1957) compared a dynamic relationship method of group leadership with an interpersonal method in the treatment of college student groups. The aim was to explore the possibility that particular people would show characteristically different reactions to one theoretical method in contrast to another theoretical method. The analysis of the data revealed that certain patterns of reaction were clearly different. For example, those group members who showed consistent withdrawal--avoidant attitudes and reactions under dynamic relationship leader methods showed anxiously friendly, socialized reactions under interpersonal psychiatric methods.

In a similar manner, therapeutic improvement in two kinds of schizophrenic patients appears to be related to the theoretical method of leadership in group psychotherapy (Ferguson, 1956; Hayne, 1958). Using three theoretical methods of group psychotherapy, it was found that the most "regressed" patients were "improved" most by the "symbolic mothering" approach of dynamic relationship methods while the most "adult" patients were helped to social remission by "socialization" methods from interpersonal psychiatry. On the other hand,

a client-centered empathy with the patient's feelings did not appear to influence therapeutic progress, but did enhance the "individuality" of these already ideosyncratic patients.

The evidence accumulated by Glad and his associates indicate that it is not only the moral values of the therapist which are communicated (Rosenthal, 1955), but that the whole "therapeutic attitude" as it were, is taken over or imitated by the patient. Again such changes are due to therapist-patient interaction and seem amenable to interpretation in terms of identification. That is, the patient identifies with the role value of the therapist and modifies his behavior in accordance with these mental health values.

In a recent extensive investigation of psychotherapy, Lennard and his associates (1960) were able to penetrate somewhat deeper into the subtleties of therapy. Although the authors state they were engaged primarily in a research designed to develop and test a methodology and to uncover hypotheses, some of their factual findings are interesting and relevant to this review. In the study, the authors used 4 therapists, each with 2 patients. The therapists were all psychoanalytic in orientation and each agreed to tape record each session continuously for one year. The data for analysis were taken from questionnaires completed by the patients and the therapists at intervals throughout the year as well as the taped interviews. The taped material was analyzed in terms of propositions--a verbalization containing a subject and a predicate. Coded along multiple dimensions, 41,513 verbal propositions were analyzed.

The authors questioned if a uniform pattern of activities over time would be seen. They found, similar to Bales problem solving groups (Bales and Strodtbeck, 1951), that the therapist behavior was characterized as orientation



which decreased through 50 sessions while evaluation behavior increased, reaching a plateau. Patients are less consistent in their behavior than the therapists, but tend to the same direction.

Further analysis of the interviews reflected "the inevitability of socialization as a consequence of psychotherapy irrespective of the orientation and skill of the therapist and the psychological problem of the patient" (p. 69). In looking at therapy from the point of view of role-learning or of a socialization process, Lennard et al. found that "while the role of patient and therapist require differentiated activities, their continuous interaction tends to increase the similarity of their behavior" (p. 86). The authors further noted that "when we applied the deutero-learning hypothesis to the process of psychotherapy, we became aware of psychotherapy as a prototypic role learning situation. It is a situation in which the patient learns the 'learning of roles'" (p. 196). However, the authors felt that deutero-learning requires more empirical documentation than they have been able to give it.

Cartwright, Seeman, and Grummon (1956) conducted an intensive study of 21 persons in client-centered treatment at the University of Chicago Counseling Center which led to some interesting and pertinent findings. This group of subjects, 10 male and 11 female, had been seen for an average of 28 interviews by 10 different counselors who were well trained in client-centered therapy and who presumably were advocates of the Rogerian school. The clients had taken a number of tests, one of which was the standard 20-card TAT, before counseling and at follow up points of six months to one year after termination of the interviews. At the time counseling was terminated, the counselors rated the success of therapy on a 9-point scale. Cartwright et al. found "that there are distinct independent significant patterns of ways of perceiving

interpersonal relations and patterns in the way these change" (p. 174). These patterns were labeled by letters from A to G.<sup>17</sup> With this major finding, the researchers decided to explore the relation of pattern scores to the age, sex, and occupation of the clients. None of these factors was significant. Length of therapy did show a relationship to patterns F and G.

Three of the 10 client-centered therapists had 3, 4, and 5 cases each in the sample under study; the remaining 9 clients were divided among 7 counselors. The investigators decided to see if there was any relationship between the patterns of perception among the clients of the same therapist. Interestingly, they found marked differences. The three cases of one counselor ranked very high on pattern F; 3 of 4 cases of another ranked at the bottom. Comparison of these findings with the counselor's ratings of success indicated that those clients rated high on pattern F were considered successful by their counselor, and those ranked low on the TAT pattern were considered as being unsuccessful in treatment. Further study of the data indicated change patterns as measured by the TAT were similar for clients of the same therapist. It is suggested that the clients of one counselor changed most in the direction of comfortable adjustment to others and less on affective release, while patients of another counselor changed most on external description and affective release and less on comfortable adjustment. It is striking that these findings persisted for a period from 6 months to one year during which there was no contact with the therapist. Cartwright and associates concluded "It appears that

---

<sup>17</sup>Patterns A through G were described as follows: A = external description of relations; B = affective release; C = comfortable adjustment; D = external description pattern (like A, but a change pattern); E = increased affectivity; F = adjustment pattern (like C); G = decrease negative response pattern. The last 4 patterns are change patterns; the others are patterns of ways of perceiving interpersonal relations.

although all therapists used the same technique, client-centered therapy, different therapists contribute differently to the kind of changes" measured by TAT analysis. (p. 174).

The study by Cartwright et al. lends further support to the problem under study. It suggests therapists are influential in effecting changes in the fantasy life of their patients. A question still left unanswered is whether or not these changes are in the direction of similarity of fantasy with the therapist. It seems rather apparent that the therapist is effecting a change due to something over and above his therapeutic orientation (the suggestion of Glad, 1959). A reasonable suggestion would be that this "over and above something" is the therapists personality with fantasy life but one manifestation of it. Suggested then, is the hypothesis that patients take on the fantasy values (perhaps fantasy life) of the therapist.

From the foregoing there is evidence that one therapist may effect his patients differently than another therapist. The question arises as to how this comes about. Cartwright, et al. suggest it is not due to the orientation of the therapist while Glad (1959) suggest orientation, as a value system, is the deciding factor. In Chapter One of this study it was suggested, following Psychoanalytic concepts, that the patient may alter his "behavior" (internal or external) because of identification with this therapist. Concern for identification in psychoanalytic theory stems from a more general concern with the means by which the individual acquires attitudes and personality characteristics from people surrounding him, i.e., the nature of the learning process as it relates to such acquisitions. Learning, in analytic thinking, is a means for ego development and is generally perceived in this context (Schrier, 1953; Wyatt, 1953, 1957). For example, Balint says, "'to learn' means in the

original sense 'to become experienced', to enrich, to develop the ego..." (1942, p. 94). Healy et al. (1930) state that identification is the "unconscious molding of a person's own ego after the fashion of one that has been taken as a model" (p. 240). Notice that this is a process definition of identification. Tauber states that "identification seems to be a process whereby one person takes over or into himself the habits, traits, or mannerisms of another person or persons. Identification thus seems to be an incorporation process and is therefore closely allied to the purely physical process of ingestion and eating" (1939, p. 61). As Alexander sees it, "the ego learns correct behavior through identification with others who have mastered it" (1948, p. 84). After thoroughly surveying the area of identification according to psychoanalytic theorists, Schrier (1953) concluded "mature identifications contribute primarily to the growth of the superego. After integration of identifications, the superego transmits to the ego the knowledge of "correct" behavior as well as emotional qualities and both contribute to the building of the ego's structure or 'character'...We consider identification as the end product of one person having become like another in certain characteristics through the processes or mechanisms of incorporation or introjection (as well as possibly through other mechanisms)" (p. 587; 589).<sup>18</sup>

To this investigators knowledge, only two studies of identification in a therapy situation have been conducted, the first of which was by Schrier (1953). Schrier wished to test whether "at the conclusion of a course of short-term therapy, identification of patient with therapist is directly related to the amount of positive rapport between the participants and the

---

<sup>18</sup>Although the writers interest in identification as a process of learning stems from Blum (1953), the present discussion follows closely that of Schrier (1953).

amount of therapeutic success" (p. 585). In the study were 9 patients distributed among 5 therapists, one therapist had only one patient, the other therapists each had 2 cases. The median length of treatment was 4.5 months. The design employed 3 different types of rating scales completed at the beginning and at the end of treatment. A Common Rating Scale (CRS) consisting of 22 personality traits and having 300 items was developed in two forms, one for patients and one for therapists and judges. Judges who know the therapists well completed the therapist form of the scale in order to obtain a reliability measure. A Special Rating Scale (SRS) was developed to measure identification, positive rapport, and therapeutic success, to be completed by the patients. A Therapeutic Success Scale (TSS) was the third scale developed. Other data were obtained by interviews with the patients and therapists in the beginning and final stages of therapy. Using Kendall's coefficient of concordance, Schrier was able to confirm his hypothesis. He concluded "the patient modifies his perceptions of himself in the direction of the therapist's self ratings or the therapist's ratings of the patient more than the therapist modifies his self-percept in the direction of the patient's self-percept" (1953, p. 600). Schrier's evidence suggested this change was more likely to occur in neurotic patients than in character disorders.

In summary, Schrier (1953) found identification in therapy was significantly related to therapeutic success and his work suggested the ability to identify with the therapist is an important variable for prognosis. With this as rationale, Briskin (1958) proposed to study certain variables contributing to identification. He operationally defined identification as changes in patient behavior from pre-therapy status to behavior similar to that manifest by the therapist (p. 195). Noting that Fenichel (1953) suggested identification

is always motivated by drives or tension, Briskin reasoned that "Since the rigid individual may not experience tension very readily, and since access to and from the ego is limited, it is quite likely that he will have difficulty in identifying" (p. 195). In a similar manner, lability was seen as ego boundaries poorly defined and weakly maintained with the person having difficulty distinguishing between self and non-self. Hence, Briskin suggested the ability to identify is severely impaired in the labile person. Therefore Briskin hypothesized an inverse relationship would be found between both rigidity and lability and identification.

Three groups of 10 subjects each (5 boys and 5 girls) were developed out of 109 ninth and tenth grade high school students who volunteered to participate in groups to discuss personal problems of adolescents. Teachers of the social living classes rated the emotional adjustment of all subjects and those rated poor were eliminated from the group discussions. Each member of the three groups, including the three therapists, completed a 50 item questionnaire to measure different personality traits. Five peers of the therapist were requested to answer the questionnaire as they believed the therapist would in order to adjust for observer--self-rating discrepancies. The students also took a group Rorschach. The group participants were described as rigid or labile, or neither, on the basis of the Rorschach analyses. The groups met two times each week for 4 months. The therapists used group analytic principles of group therapy and were thus relatively active in the group discussions. Changes by the students were rated on movement from pre-treatment to therapist as rated by the observers. Briskin found support for his hypothesis at the .01 level. That is, those students described as either rigid or labile were found to identify least.

## 2. The Dependent Variable--Problem Solving Behavior

A. Problem Solving Process. Problem solving behavior has been of interest to psychologists from the very beginning of scientific psychology as a subcategory of thinking (Wertheimer, 1945; Thomson, 1959; Chaplin and Krawiec, 1960). From the beginning, there has been an interest in the processes involved in solving complex mental problems<sup>19</sup> (Duncan, 1959; Harris and Schwah, 1961), but prior to the 1940's the studies were mainly descriptive without any clear cut distinction made between the process employed in solving the problem and the product or answer (Wertheimer, 1945; Duncker, 1945).<sup>20</sup>

The classical period in the study of problem solving behavior may be distinguished by a very descriptive, abstract analysis of the various aspects of the problem solving process inferred from the solutions to the problems offered by the subjects (Dewey, 1933; James, 1890; Lazerte, 1933; Wertheimer, 1959; Duncker, 1945; Kohler, 1927, Thorndike, 1911, Morgan, 1898). For instance, Duncker's interesting and complicated problems were designed to investigate abstract reasoning so that he could discover general facts about reasoning. It is sufficient for purposes of this review to point out that Duncker was not interested in testing specific hypotheses, but rather he meant to open up the field of problem solving and to raise questions. In a similar manner, Wertheimer (1959), Duncker's former teacher, carried out a series of

---

<sup>19</sup>This is quite understandable when one considers that the early researchers of problem solving were really interested in thinking from a frankly philosophical frame of reference, and they were only using problem solving as a tool to depict and objectify thinking (Thomson, 1959). Witness, for example, James' "the stream of thought" (1890).

<sup>20</sup>The rise in more objective investigation may be attributed partly to the gain in popularity of Behaviorism in the United States, and partly to the advances made in experimental methodology and refinements in statistical techniques.

informal studies which may be better viewed as demonstrations than formal experiments in problem solving. Hence, it would add little to this survey to review the work of these men in detail; it is sufficient that we acknowledge their interest in the area and point to their insights when they are again replicated in later controlled experiments. It should be emphasized that both Wertheimer and Duncker employed inferences about the processes of problem solving from the product and did not attempt to explicitly study the processes as the object of inquiry. Furthermore, they relied exclusively on retrospection and introspection rather than the more objective methods currently available. With these few comments and acknowledgements we leave the classical period and move to the modern scene.

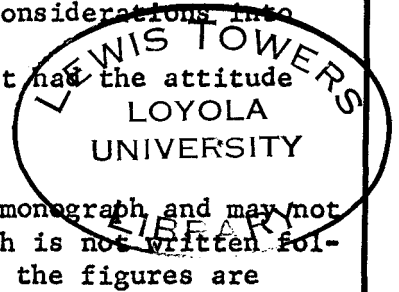
The first experimental study to emphasize the distinction between problem solving processes and the products or answers reached in solving problems was conducted by Bloom and Broder (1950). They state their aim as "an effort to understand more about the nature of problems and the processes of thinking involved in problem solving" (p. 7). They wished to select problems for which the subject would have clear-cut, although often quite complex, goals to achieve and for which he could make a conscious plan of attack. Bloom and Broder regarded problem solving as "the process by which the subject goes from the problem or task as he sees it to the solution which he regards as meeting the demands of the problem. A problem may be regarded as a task, which the subject is able to understand but for which he does not have an immediate solution" (p. 7). The investigators conducted a series of studies which may be roughly grouped under three headings--exploratory studies, comparison of successful-nonsuccessful problem solvers, and explorations in a remedial approach to make good problem solvers out of unsuccessful ones. Eighteen



subjects participated in the exploratory study; 39 subjects were involved in the comparisons between successful and nonsuccessful problem solvers, 27 of them were described as representing the typical student and 6 in each of the categories of successful and nonsuccessful. Eighty-three subjects participated in the program designed to alter faulty methods of approaching problems.<sup>21</sup>

Bloom and Broder employed the method of "thinking aloud" which is an attempt to get the subject to verbalize his thoughts as he works the problem. Data for analysis was verbatim records of this "thinking aloud," several check lists, and the solutions to the problems. In the exploratory study Bloom and Broder found they could quite accurately describe the approaches used in solving the problems but they made no attempt to quantify the data except to score the accuracy of the answers. Bloom and Broder distinguished successful from nonsuccessful problem solvers on the bases of the approach they used in solving the problems (processes). Although they handle their findings descriptively without employing elaborate statistical analysis, some of their observations are pertinent. Bloom and Broder found the attitude of the problem solver was distinctly different between successful and unsuccessful subjects. By attitude the writers meant "emotions, values, and prejudices of the student as they are involved in the attack on problems" (p. 30). The experimenters found that three "attitudes" clearly distinguished the nonsuccessful from the successful problem solvers: attitude toward reasoning, confidence in their ability to solve problems, and the introduction of personal considerations into their problem solving. That is, the nonsuccessful subject had the attitude

<sup>21</sup> These figures are those reported throughout the monograph and may not represent the total number of participants. The monograph is not written following a strict experimental exposition, and consequently the figures are vague.



that "reasoning is of little value and that either one knows the answer to a problem at once or one does not" which was quite the opposite of the successful problem solvers. So too, the nonsuccessful people were easily discouraged and either were not sufficiently confident to begin the task or felt sure their solution was incorrect. The unsuccessful problem solvers had great difficulty in maintaining an objective attitude in certain problems because their personal opinions played such an important role.

The exploratory study of remedial methods of problem solving was rewarded with positive changes. The method Bloom and Broder used in their attempt to alter problem solving approach was as follows. Bloom and Broder first obtained characterizations of problem solving approaches used by successful students. Then, in small groups of from 5 to 20 students they would spend 3 sessions comparing their own problem solving methods with the model. The experimenters would then flash a typical problem on a screen and ask several of the students to solve the problem and to "think aloud" as they did so. These groups were found to be too large to handle and after 3 sessions the groups were broken into smaller units in which students alternated in attacking problems and observing the problem solving processes of others for discussion. Using this small group method as well as individual sessions, the authors state:

...it was important for the student himself to find the difference in method. One reason for this was the abstract character of these differences in method; we believed that, if the student found the difference himself, we could be a little more sure that he comprehended it than if it had been pointed out to him by the interviewer. Another reason for this procedure was the increased likelihood that the student would accept the differences in method if he could discover them himself. Some of the emotions aroused by the remedial students' sense of failure and inadequacy and their antagonism toward the interviewer appeared to be somewhat tempered by their search for, and discovery of, the differences. This technique of discovery helped the students to see the importance of the differences in the attack on problems, especially when the same difficulty was

found repeatedly. (p. 73)

Using evidence from the students, from members of the faculty, from the actual problem solving processes, and from outside examination criteria, the experimenters found apparent changes in the positive direction, although typically no statistical tests of significance were employed to specify the probability level of their conclusions.<sup>22</sup>

The study by Bloom and Broder not only demonstrated that one's way of going about a problem is intimately related to its successful solution, but they also show people can alter their approach to problems and become more effective. The small, warm, understanding, and yet emotional groups were considered effective in altering the problem solving processes. But this method was tried only after more didactic intellectual training methods failed.

Notice that the small group method might be considered an analogue to psychotherapy if not, strictly speaking, group therapy. The implications for the present investigation are obvious. For a look at the other side of the coin, witness Snyder in action (1961). Snyder states:

...two methods used by the therapist (himself)\* that occur frequently, and that require some discussion. These are asking questions, and "teaching" in the form of showing the client how to make discriminations, and at times to make appropriate generalizations...The therapist consciously uses teaching methods proudly. Holding to the basic premise that therapy is a learning situation, and the second premise that teaching procedures have a long and glorious history of effective production of learning, he accepts the obvious conclusion that there are many situations in which it is appropriate to teach in therapy...The argument that this approach is too intellectual, because neurotic behavior is emotional and not cognitive, is cogent at times, but...The human adult is rarely wholly emotional or totally cognitive, but exhibits a combination of the two. Almost all behavior above the reflect level has its cognitive elements. (1961, p. 70)

Snyder is a client-centered therapist, not a psychoanalyst attempting to do

---

<sup>22</sup>The authors did state levels of significance for changes in average grade points, (pp.86-87).

reconstructive treatment where admittedly such behavior is practiced by the therapist.

Buswell (1956) conducted an investigation concerned "with processes of thinking rather than with specific arithmetical outcomes" (p. 63). The expressed purpose of the study was "to find whether there are general patterns of problem solving thinking which characterize sizable groups of individuals, or whether the thinking process is so varied in character that only descriptions of individual thinking can be given" (p. 63). In his attempt to find patterns of thinking in problem solving, Buswell used both group and individual methods of collecting data, 499 Ss cooperated in the study. The group data were employed to explore external factors, i.e., recognition of the problem, whether the subject begins by estimating (hypothesizing) what the answer will be, while individual performance data were employed to objectify and identify the sequence of operations as the subject tried to find a solution to the problem. Obviously, the major difficulty was to find objective evidence of the thinking process. Buswell's procedure was to administer 4 problems in group form and 2 individually administered problems. The data consisted of scores from these problems and tape recordings obtained from a portion of the subjects while taking the individual tests. The arithmetic problems constructed for individual administration are particularly relevant to this study since they represent an effort to obtain objective data of the problem solving process. The method used was a modification of Lazerte (1933). The tests consisted of 38 cards which included the essential steps and information for solving the problem. These cards were then divided according to the information they contained into two groups and placed in separate envelopes. This division allowed the subject to choose the general approach to the arithmetic

problem--using algebra or using logical reasoning. Once the subject made his choice, he was given the corresponding envelop of information and had to reach his solution by making further selections of cards and envelopes of cards. His selections were then recorded by the experimenter. Using this modified Lazerte technique, Buswell was able to diagram the patterns employed in solving the problems.

As a result of this extensive study, Buswell suggested that variation rather than uniformity is a major characteristic of the problem solving process (p. 131). Furthermore, he suggested that although factors external to the problem solving process do definitely play an important role in the solution of problems, "some (problem solving)\* sequences are more effective than others" (P. 134). Buswell indicated that it is not mental ability which distinguishes successful from unsuccessful problem solvers (p. 99); rather, it was apparent with a number of subjects that a lack of confidence in their ability to deal with the unfamiliar material played an important part in bringing about failure in the solution of the problems (p. 91).

Using an objective rather than descriptive method, Buswell confirmed earlier observations made by Bloom and Broder that the process aspect of problem solving behavior was positively related to effectiveness. Although he was concerned primarily with the process intrinsic to problem solving, he emphasized that personality characteristics, such as confidence, was of central importance! Because it was not Buswell's purpose initially to look at problem solving as being affected by personality, we cannot help but suggest that such a relationship became so obvious that he was impelled to notice it. This observation is perhaps more important than if he simply found what he was looking for--a personality factor.

Bruner, Goodnow, and Austin (1956) made a very intensive investigation of concept attainment in which their primary concern was process as opposed to product analysis. As well as being a report of 8 significantly different studies, the book, A Study of Thinking, brings together much of the research in the area of concept formation. Bruner et al. report that their principal interest was to study concept attainment with an "aim to externalize for observation as many of the decisions as could possibly be brought into the open in the hope that regularities in these decisions might provide the basis for making inferences about the processes involved in learning or attaining a concept. These regularities in decision-making we shall call strategies" (p. 54). The strategies are inferred from the pattern of decisions observed in the problem solver as he seeks to attain a concept (p. 55). The method employed by Bruner et al. may be described as follows: the task for the subject was to develop a concept employing certain defining attributes (e.g., border, color, figure, number of figures). One concept was selected for each problem and the subject had to arrive at this concept by discovering its various attributes from an array of 81 cards (e.g., 2 green circles with double border).

Although A Study of Thinking reports the results of 8 distinctly separate experiments<sup>23</sup> in which a total of 321<sup>24</sup> college subjects cooperated, only

---

<sup>23</sup>The authors state the work is a report of "several dozen" experimental studies conducted during the 3 years (p. 80). However, this writer could detect only 8 individual experiments which were being reported for the first time. Other studies were previously reported in Ph.D. dissertations and Bruner et al. report on them, and integrate the findings into their discussion.

<sup>24</sup>This is an approximate figure; often it is not clear how many subjects were in the study.

one study will concern us in this review.<sup>25</sup>

<sup>25</sup>The seven experiments besides the one presented in this survey had the following aims: E 1 - using 12 subjects, the investigators wished to see how consistent the various strategies were under changes in cognitive strain (p. 92). "Scanners show a decrement in quality of performance under more difficult conditions; focusers show little or no change" (p. 96).

E 2 - 30 subjects were used to study the effect of orderly (orderly group) versus random presentation (random group) of material necessary to attain a concept (p. 97). They found the ordered group worked more efficiently than the random group and that the subjects used different approaches to the problems (p. 99). (Fifteen of these subjects were also used in E 3 presented in the body of this review.)

E 4 - Approximately 60 subjects were used to investigate the manner of choice's made after a concept was demonstrated in a positive manner. Subjects were to choose cards which exemplified the concept demonstrated. The subjects formed 3 groups --the first was instructed to make as few choices as they could, the second was allowed only 4 choices, and the third could have but one choice (p. 117). The study showed "when choice is limited, what becomes important is that one move quickly toward a solution of the problem. The importance of achieving a guaranteed intake of information on each test vanishes in value" (p. 119).

E 5 - 48 graduate students cooperated in a study in which the investigator "altered experimentally the subject's conception of the probability with which various outcomes or 'states of the world' will occur" (p. 119). That is, they altered the number of positive and negative instances subjects encountered in the course of their task. Bruner et al. found "it seems evident that decisions about concept-attainment strategies alter in the face of changing probabilities of encountering different kinds of instances. An individual will increase the rate of gaining information within the limits imposed by this probability. If the chances of encountering positive instances becomes too slim, he will move in the direction of a safe-and-sound procedure where a guaranteed amount of information can be obtained regardless of the positive or negative status of instances encountered. If the environment becomes highly "positive," he will move to increase his informational yield by adopting a strategy that under normal circumstances would be a risky one" (p. 124).

E 6 - 48 subjects were used to study the effects on the process of concept attainment of the number of attributes included in a problem. Fourteen problems of varying number of attributes were used with each subject (p. 137). The authors report that there is a very marked tendency for a subject to use the same approach consistently (p. 139).

E 7 - 50 subjects participated in an examination of the manner in which people go about attaining disjunctive concepts (p. 162). Bruner and associates found that for an efficient solution of a disjunctive problem the person must begin his solution from "outside the category" and proceed into it, usually with negative illustrative instances (p. 177).

E 8 - 60 subjects were used in an experiment to discover what happens when the subject is presented with conflicting cues (p. 212). The evidence suggests the subject "abandon efforts to reduce or completely eliminate error and attempt instead to keep it within tolerable limits" (p. 215).

One of the studies conducted by Bruner and his associates was designed to compare abstract and thematic problems. The abstract problems had attributes such as color, geometric figure, size, and border (present and absent) whereas the thematic problems consisted of pictures depicting a relationship, similar to some cards of the Thematic Apperception Test. Forming two equivalent groups of 15 subjects each, the experimenter wished to see if any differences in approach to problems could be found between subjects solving highly abstract problems and subjects solving problems which "reek with meaning" (p. 106). The authors found little change in performance from problem to problem within each group (p. 108). Differences were found, however, between the two groups of subjects. The thematic group required more information to reach a solution than did the group solving highly abstract problems. Furthermore, the thematic group used successively evaluated hypotheses and used past instances with which to evaluate new hypothesis. As a result, the thematic group offered significantly more incorrect hypotheses than did the abstract group. Briefly, the authors concluded that thematic material led the problem solver to fall back upon reasonable and familiar hypotheses with which to reach a solution, and secondly, subjects working with thematic material hang on to attributes which are nonrational whereas abstract material does not elicit this irrational problem solver behavior (p. 111). In conclusion, where it is possible to do so, the individual will fall back on the guidance of common experience in attempting to attain a concept (p. 111).

As a general conclusion, Bruner et al. found that subjects adhere to particular approaches to problems so that it is apparent that they do not behave in a random fashion. Rather, they behave in a highly patterned, highly "rational" manner (p. 155). They further suggest, however, that a lack of



confidence might have the effect of leading to inefficient problem solving processes (strategies) (p. 227).

The study by Bruner et al. led to two important implications for the present study. First, they suggest that problems of a thematic nature (and the problems used in this study fit this description), are more subject to individual personality differences than are abstract, purely "cognitive" problems. This suggests that at least to some degree the problems herein employed reflect aspects of the subjects past life experiences and that changes in the problems may mean an alteration in the way the person perceives his past. Secondly, the personality dimension of confidence is again emphasized as significant in one's effectiveness at solving problems.

In a somewhat different attempt to objectify the processes engaged while solving a problem, John and Rimoldi (1955) developed the Problem Solving and Information Apparatus (PSI). The PSI is an electronic apparatus which allows the experimenter to present abstract problems of varying complexity to subjects and it allows a recording of the exact steps the subject uses to reach a solution. The subject's task is to discover a set of relationships and then manipulate them by pressing keys on the PSI until a solution is obtained (For an illustration of the PSI, see John, 1957). Employing the PSI with 59 subjects, John (1957) conducted a study in which he explored differences between Ph.D. candidates of different specialties, and students just beginning college with their aim being to become Ph.D.'s in these same specialties. John wanted to see whether there were any differences between the problem solving processes of subjects entering a specific career and those having just completed such career training (graduate school). The results of the study suggest marked differences between natural-science Ph.D. subjects

and Ph.D. subjects of other specialties (non-natural-science specialty). Further analysis suggested that such differences existed between the 2 groups at the college level, before any specialized training (p. 37). Seemingly, career interests were associated with a particular approach to the PSI and the 4 years of specialized training (graduate school) had little appreciable effect on the problem solving approach used by subjects. Individual problem solving processes appeared to be consistent from problem to problem. John points out also that "some aspects of personality appear to be reflected in the problem solving process, such as, for example, self-confidence, anxiety, and compulsiveness. Personality factors as well as cognitive factors contribute to the PSI performance" (p. 38).

Although John's study suggested no changes occur in problem solving processes because of training, it should be recognized that typically in graduate school, training takes place in a highly abstract and often impersonal or nonemotional environment. Hence, although the findings of John contradict those of Bloom and Broder, this contradiction may be explained in terms of a difference in atmosphere and aim. Again, notice the importance personality factors play, even in this highly abstract task.

Prior to working with John, Rimoldi developed a technique allowing an objective appraisal of the problem solving process used by subjects (1955).<sup>26</sup> A basic assumption underlying the method is that one can analyze the process of thinking, rather than the end product of thinking, by exploring the type, number, and sequence of questions asked by a subject as he solves a problem

---

<sup>26</sup>Historically, the PSI developed out of ideas formulated by Rimoldi. That is, the PSI is an extension and modification of the Rimoldi Technique and not vice versa as the literature would suggest.

(1955, p. 450). The Rimoldi technique may be described as follows.<sup>27</sup>

The examinee is requested to solve a given problem by asking questions that he judges necessary for its solution. The questions that the subject might wish to ask are written on cards--one question to a card--and the corresponding answers are given on the back of each card.<sup>28</sup> These cards are placed in flat pockets arranged on a display folder so that the subject can see all of the questions that he may ask. Each question is given an arbitrary number which enables the experimenter to record the questions asked and the sequence in which they were selected.

Having been presented with a problem, the subject has a hunch as to how it may be solved, and wishes further information with which to confirm or reject his idea. He obtains the desired information by asking a question (selecting a card) and thus gaining further understanding of the problem. With this additional information, he may feel he can solve the problem or he may have been stimulated to further questions or hunches concerning the given problem. He proceeds by asking more questions until he feels he has the necessary and sufficient information to solve the problem. Of course, when this point is reached, he offers his solution or answer.

The first practical problem in which the Rimoldi technique<sup>29</sup> was applied was the development of instruments to be used to evaluate and aid in

---

<sup>27</sup>The reader is referred to the following sources: Rimoldi, 1955; 1960, 1961a, 1961b; Rimoldi, Devane, & Haley, 1961; Rimoldi & Haley, 1963.

<sup>28</sup>This is the method used in the present study but it does not represent an essential step in the Rimoldi methodology. In other types of mental problems, the presentation of questions on cards is not desirable, but the statistical procedures of the technique may still be applied.

<sup>29</sup>The technique or method was further developed and refined during the tenure of this 5 year study.

the training of medical students (Rimoldi, Haley, & Fogliatto, 1962). The first problem was to develop an instrument "that would not violate grossly some of the major features that seem to be important in the clinical diagnostic process and to use it as a way of appraising diagnostic ability" (1962, p. 2). For this purpose, the test must be able to differentiate physicians and students and perhaps allow for the possibility that different physicians may reach the same diagnostic conclusion using different processes or that different processes may lead to different diagnoses (1962). Furthermore, "if medical education develops and improves diagnostic ability and if the Test of Diagnostic Skills estimates this ability, then changes in test performance should be related to changes in medical training" (1962, p. 2). To arrive at an answer to these questions 7 research tests were developed, and 2 of these were thoroughly explored. A total of 275 subjects participated in the investigation; 41 were physicians, 145 were senior medical students, and 89 were junior medical students. The subjects were obtained from five different medical schools.

Rimoldi and his associates analyzed the data in terms of the number of questions used, utility index and utility scores, pattern analysis, performance curves, and sequential analysis (1962). Differences in the number of questions asked and the utility scores suggested the seniors were more economical and homogeneous than the other two groups of subjects (1962, p. 8, 27). The analysis of the utility index for the different questions indicated "the three groups are closely similar in the relative frequency with which they perceive the usefulness of different items of medical information given in the tests" (1962, p. 22). But, looking at the data in terms of pattern analysis indicated "that the seniors' pattern agreed more with the physicians' pattern than did the juniors' pattern" (1962, p. 39). At the same time, the

performance curves suggested "physicians obtain more information at each step than seniors and seniors more than juniors" (1962, p. 43). When the sequence of selection was considered, indications were that there was increased similarity of approach with increased medical knowledge (1962, p. 53).

To further clarify the usefulness of the Test of Diagnostic Skills by seeing if it would reflect improvement of diagnostic ability as a result of medical education, Haley conducted a 1 year longitudinal study (1960). He tested the same group of 36 students at the junior and senior levels of medical education using two tests of the Test of Diagnostic Skills. Haley found that "the learning period that took place between the first and second administration is a real source of variation for the number of items selected" (1960, p. 20). Furthermore, he found the group was more in agreement with the physicians' performance in their senior year (p. 24) as well as among themselves (p. 35). It is interesting to note that the most striking changes occurred in regard to interview material, and that actual interview experience was first encountered by these students during the experimental period (p. 35). Also, Haley found the approach to the 2 problems were similar at a given time suggesting subjects were consistent in their approaches (p. 39). In general, Haley concluded "that the Test of Diagnostic Skills is capable of measuring changes that take place during a learning period" (1960, p. 39).

Despite the fact that Haley did not control for maturational or test-retest factors, the implications drawn from the work on the Test of Diagnostic Skills are significant. The work thus far completed suggested the method developed by Rimoldi and his associates is able to reflect differences in performance at various levels of training, and that the test reflects changes which occur in individuals over time.

Rimoldi and Devane (1961) conducted a study to explore individual characteristics of problem solving behavior with the major aim of discovering the extent to which high school students may be trained in problem solving procedures. Fifty male freshmen high school students, divided into 2 matched groups were given problems before and after an experimental period of 6 months. The 25 experimental subjects were given problems bi-weekly by the same experimenter in 7 sessions lasting about 45 minutes. During this time the experimenter would obtain data following the Rimoldi method format. After the student offered a solution, the experimenter would go through the process employed by the student with him, and encourage the subject in a non-stressful (nondirective) manner to observe his own method of approach. The purpose of this procedure was to allow the subject to critically evaluate his own problem solving process. Rimoldi and Devane found that the experimental group became more homogeneous and efficient in their approach while the control group remained essentially unchanged when evaluated in terms of ellipsoids (p. 33). Furthermore, the experimental group had significantly better grades in mathematics after their 6 months participation in the research than before; the control group did not show any change.

This study by Rimoldi and Devane (1961) was continued the following year by Rimoldi et al. (1962). Besides describing problem solving processes at an individual level, the study proposed "to study how training improves thinking processes without prescribing "best" ways of thinking or without assuming that a given problem is solvable by only one method" (1962, p. 3). One hundred subjects, 52 high school and 48 college freshmen males participated in the study. The subjects were matched and divided equally into control and experimental groups. Forty-one problems following the Rimoldi format were

prepared and used in the study. Part of the problems were used as training instruments and part were used as pre- mid- and post-experimental period tests. The investigators note that where observable changes in the processes are found, they are not associated with the correctness of a solution (p. 36). Generally speaking, using the Rimoldi technique, it seems that with increased experience and knowledge, subjects become more similar in their approach to the specific problems (1962b, p. 72; also 1962a, p. 53). That is, it appears that training in one type of problem is effective in altering the problem solving processes in at least that specific type of problem (1962b, p. 29). Furthermore, by changing the training problems it is possible to alter the processes involved in solving other types of problems (1962b, p. 29). This study confirmed the earlier findings of the 1961 study (Rimoldi and Devane) and further indicated that such changes can be obtained working with college students.

These two exploratory experiments in "Training in Problem Solving" indicate that it is possible to alter the approaches to problems and that this can be in some degree controlled by regulating the type of problem used in the training. The studies show that the Rimoldi method is able to reflect such changes.

Tabor (1959) conducted a study employing the Rimoldi technique in an attempt to explore how the clinical psychologist utilizes the Rorschach in arriving at a diagnosis (p. 2). Thirty "professionally skilled Rorschach analysts" were tested on 3 protocols of actual cases: a normal, a schizophrenic, and an organic subject was used to make the three cases. Tabor analyzed the data in terms of utility scores and pattern analysis (Rimoldi and Grib, 1960), and he employed Kendall's coefficient of concordance (W) to

arrive at estimates of agreement between subjects. The results of the investigation reflected "a definite lawfulness in sequence of accumulating Rorschach data for diagnostic purposes" (p. 103). This uniformity of approach was present even when the diagnostic problems varied (p. 104). In analyzing the data on an individual level, employing the coefficient of concordance, Tabor found "a high degree of self-consistency and orderliness in Rorschach interpretation. His consistency was unrelated or, perhaps, only slightly related to his efficiency ( $r = .22$ ), His self-consistency was apparently more a function of his personality than of any diagnostic skill" (p. 105). When the sequence of selection was considered, "The amount and type of information selected clearly differentiated the more skilled diagnostician from the less skilled" (p. 106).

Again, although personality factors were not under study, they are singled out as a major factor distinguishing the performances of people. Also, the suggestion that the Rimoldi technique can distinguish different levels of training or sophistication is given further validation.

Mohrbacher (1961) conducted a study of the approaches used by professional disciplines in the diagnosis of organicity. He employed the Rimoldi technique of problem solving process "to determine the type of clinical information members of these three disciplines (psychiatrist, clinical psychologist, clinical social worker)\* requested in forming a diagnosis of organic brain disorder or some alternative diagnosis" (p. 2). The investigator used clinical case material from 4 children judged by a clinic staff to have minimal brain damage from which he developed his experimental problems. Sixty subjects participated in the investigation, divided equally among the 3 disciplines. Mohrbacher found "the majority (of subjects)\* seemed to follow no consistent pattern in selecting items...(p. 53) but the three groups were remarkably



homogeneous when considered separately" (p. 103). Furthermore, although subjects reached substantially the same diagnosis, they would do this with different approaches to the problem (p. 67).

Gunn (1962) proposed to validate the Rimoldi technique as a method of examining the thought processes involved in the solution of clinical problems (p. 1). He hoped to determine whether lay persons solve clinical problems in a different manner than professionally trained persons (p. 4), and whether emotional illness was associated with different approaches to problems (p. 5). On the professional level, Gunn wanted to discover the effects of experience (p. 5), as well as the effects of theoretical orientation (p. 6).

Gunn enlisted 95 subjects for the study, 26 psychologists, 40 social workers, and 30 lay persons. Six of the psychologists and 10 social workers were defined as trained, while another 6 psychologists and 10 social workers were considered untrained. The remaining subjects did not fit either category. The lay persons were equally divided into three groups--bright, neurotic, and uneducated. Three clinical problems were developed in a pilot study and each consisted of 130 question-items. The cases concerned a marital problem, a 12 year old boy with school problems, and a 13 year old girl with bad dreams (the content of which was violent arguments).

Gunn found he could not discover differences among his groups in terms of the amount of information requested, but the uneducated subjects requested a different kind of information than the other groups (p. 33). There was remarkable consistency for each individual from problem to problem ( $r = .92$ )<sup>30</sup> (p. 33). When the sequence of selection of information was considered, Gunn

---

<sup>30</sup>Gunn states he used the Pearson  $r$  but in his description and discussion, he talks of ranks. It is not clear if Pearson or Rho was used.

groups as well as within groups on the trained-untrained dimension (p. 45). Psychologists were found to be most homogeneous, followed in order by social workers, bright subjects, and uneducated persons. Gunn reports his neurotic sample was so different and variable that he could not quantify their performances (p. 31, 50). As a general conclusion, Gunn suggests both education and training effect the manner in which people solve problems (p. 49) but that these differences are not apparent from the kind of information requested. It is necessary to consider the order of selection or the problem solving process before differences in performance becomes apparent (p. 41). The study indicated that the Rimoldi technique may be meaningfully applied to clinical problems.

Although Gunn called the research a validation study (p. 1) the work cannot be considered more than exploratory, and consequently his conclusions are suggestive. This later point is important since Gunn suggested it was not possible to quantify the performance of his neurotic subjects (1962, p. 31;50), and the present investigation involves the assumption that such emotionally ill persons can be described using the Rimoldi method. Perhaps the researcher's inability to characterize the neurotics was due to his instrument development and not due to the sample or the Rimoldi method. That is, he used problems composed of 130 questions and reports having tested only 95 subjects on them. The tables of proportions used for scoring the subjects (Gunn, 1962, Appendix III) had relatively few cells filled and hence many questions received no weight and were thus indistinguishable. Using these tables, it is not surprising that many subjects selected cards with no weight and hence their performances were indistinguishable.

In view of Gunn's study, it appeared imperative that problems be developed using less than 130 items or an extremely large sample with which to develop scoring weights if they were to be used to characterize the performance of neurotic subjects. It was decided to use problems with less items for the present study.

B. Some factors influence Problem Solving Performances. Although Wertheimer (1959) considered insight into the structural requirements of the situation as the most essential aspect of problem solving behavior, he did not consider cognitive processes the only determinant of efficient behavior. He stated:

Still other, entirely different factors of experience play a role in such thought processes, and an important role. The attitudes one has developed in dealing with problem-situations--having had the experience of achievement or only of failure, the attitude of looking for the objective structural requirements of a situation, feeling its needs, not proceeding willfully but as the situation demands, facing the issue freely, going ahead with confidence and courage--all these are characteristics of real behavior, growing or withering in the experience of life.

Thus problems of personality and personality structure, structural features of the interaction between the individual and his field are basically involved. In connection with the latter we have also to realize the structure of the social situation, the social atmosphere one is in, the "philosophy of life" developed in the behavior of the child or person in his surroundings; the attitude toward objects and problem-situations eminently depends upon these factors....it is more helpful at times to create the right mood than it is to force on the subject certain operations or drill. (1959; p. 63-64).

Wertheimer offers as evidence of these "entirely different factors" his encounter with the young girl who had just returned from her first day on a job. He points out how her whole description of her office was centered around her and that although she stated the relations between the various office personnel correctly and completely, she was not able to make the real picture clear because of her own narcissistic ego involvement (pp. 181-192).

On the other hand, prominent personality theorists, such as Allport

(1961) and Maslow (1962) consider an understanding of cognitive behavior essential to a complete understanding of personality. Maslow, for example, has this to say about cognition:

22. Immaturity can also be differentiated from maturity in terms of the cognitive capacities (and also in terms of the emotional capacities). Immature and mature cognition have been best described by Werner and Piaget. We can now add another differentiation, that between D-cognition and B-cognition (D = Deficiency, B = Being). D-cognition can be defined as the cognitions which are organized from the point of view of basic needs or deficiency-needs and their gratification and frustration. That is, D-cognition could be called selfish cognition, in which the world is organized into gratifiers and frustrators of our own needs, with other characteristics being ignored or slurred. The cognition of the object, in its own right and its own Being, without reference to its need-gratifying or need-frustrating qualities, that is without primary reference to its value for the observer or its effects upon him, can be called B-cognition (or self-transcending, or unselfish, or objective cognition). The parallel with maturity is by no means perfect (children can also cognize in a selfless way), but in general, it is mostly true that with increasing selfhood or firmness of personal identity (or acceptance of one's own inner nature) B-cognition becomes easier and more frequent. (This is true even though D-cognition remains for all human beings, including the mature ones, the main tool for living-in-the-world.)

To the extent that perception is desire-less and fearless, to that extent is it more veridical, in the sense of perceiving the true, or essential or intrinsic whole nature of the object (without splitting it up by abstraction). Thus the goal of objective and true description of any reality is fostered by psychological health. Neurosis, psychosis, stunting of growth--all are, from this point of view, cognitive diseases as well, contaminating perception, learning, remembering, attending, and thinking. (1962, pp. 188-89).

Notoriously, the clinician has been acutely aware of the influence of personality factors (affective) upon cognitive processes and of the interaction moving in the opposite direction. Many case history presentations attest to the fact that an individual has not realized his full intellectual potential perhaps because of emotional interference while other cases accent the use of cognitive behavior to cope with affective stimulation, e.g., intellectualization as a defense mechanism. Although this problem of personality-cognitive interaction has not been affronted directly by experimentation, many controlled investigations offer evidence of such interaction. This survey of literature

will be concerned only with such studies which have a direct bearing on problem solving behavior.

Luchin's (1942) development of the water jar test of Einstellung together with Frenkel-Brunswick's (1950) studies of ethnocentrism and authoritarianism, led to much speculation and research concerning anxiety, fear, threat, rigidity, and the like. Seen in perspective, the problem appeared to be partly one of semantics, and partly a problem of measurement. The controversy finally developed into the question of whether "rigidity," as measured by performance on the water jar test or the F or E scales was a generalized personality characteristic or whether it was specific to particular behaviors. One of the clearest conceptualizations of the problem with a design to resolve the controversy was presented by Harris (1950).

Harris (1950) suggested personality rigidity was an inference from observed rigid behavior and he hypothesized that emotional stress would result in rigid problem solving behavior (p. 3). Forty-nine undergraduate students cooperated in the study and were divided into two groups--24 were in the stress group, 25 in the nonstress or control group. Defining stress as frustration or anxiety, Harris proceeded to treat the experimental subject with an attitude suggesting the subject was not liked, and that he was failing in the tests. To insure that the subjects experienced stress, Harris gave a false interpretation of a personality test taken by the subject indicating the subject was in fact neurotic. It was found that the stress subjects took longer to solve the modified Luchin Einstellung problems; all other findings were not significant. Harris demonstrated that "stress acted to rigidify an already established set to solve problems in a particular way," and he concluded that differences between the two groups could not be accounted for by stating "that

stress acted to disrupt the subject's performance on the test problem" (1950, p. 101). Harris concluded "that individuals who were placed in a situation threatening to their self-esteem developed rigid hypotheses" (p. 143).

In an attempt to relate his findings to psychotherapy, Harris says:

Therapy is a process in which old, rigid hypotheses are infirmed and new self-hypotheses are developed. The individual must give up his old, rigid hypotheses and develop alternate hypotheses...

The therapeutic situation must be one in which threat to self-esteem is reduced to a minimum. It has been found, for example, that "warmth, acceptance, and understanding" by the therapist can lead to reorganization in the perception of the self. In our terms such a therapeutic situation is the medium in which alternate hypotheses about the self again become potentially confirmable. But, where do these alternate hypotheses spring from? It is possible that the source of new hypotheses about the self come from the "interpretations" of the psychoanalyst or the "restructurings" of the non-directive psychotherapist....It seems to the writer that the process by which new hypotheses become potentially available for confirmation in the therapeutic situation is still very much a subject for intensive research (1950, pp. 144-145).

Fisher (1950) found that "the degree and character of the rigidity shown by an individual in dealing with a given situation seems to vary in proportion as that situation poses a threat or raises serious adjustment demands" (1950, p. 41). Fisher draws this conclusion from a study designed to find some determinants of personality rigidity. His subjects consisted of people defined as normal, hysteric, and schizophrenic. Interestingly, he found that people, regardless of their diagnosis, were not always rigid in every task, but only when the task was of concern to the person and was threatening to the self.

Cowen and Thompson (1951) hypothesized that psychological rigidity is a general response characteristic that pervades all aspects of an individual's behavior (p. 165). That is, the authors suggested that a persons behavior should show similar generalized response tendencies in perception, problem solving, emotions, motor responses, and the like. They used 93 eighth grade

students, 47 boys and 46 girls matched for intelligence. The authors divided the subjects into rigid and flexible groups as measured by Einstellung and gave all subjects the Bell Personality Inventory, the California Test of Personality, and an individually administered Rorschach. Cowen and Thompson found no differences between the groups on the paper and pencil inventories but ratings of adjustment, judged from the Rorschach, demonstrated significantly poorer adjustment for the rigid group (p. 174). The authors state "...the personality factors which appear to be related to Einstellung rigidity (as contrasted with flexibility) include: limited productivity and imaginativeness; diminished resourcefulness; inability to perceive complex relationship and to integrate constructively; a generalized suppression of emotional expression with respect to both rich inner creativity and interaction with the outer environmental reality; an inability and hesitancy to enter psychologically new situations, combined with a feeling of uncertainty and lethargy when actually in such situations; a tendency to 'leave the field' when the going gets difficult; a restricted range of interests and narrower sphere of function; and a poorer adjustment to society" (p. 174-175). Cowen and Thompson suggest "These results tend to confirm the hypothesis that rigidity, as herein defined, is a general factor in personality organization and functioning" (1951, p. 175).

In a study employing 62 female graduate students, by no means implied to be "normal," Beier (1951) proposed to investigate the relationship between perceived threat and various intellectual factors which may reflect rigidity (p. 1). He divided his subjects into stress and nonstress groups, matching on the basis of ability to think with abstract symbols as measured by the Abstract Reasoning subtest (form a) of the Differential Aptitude Test. For stress conditions Beier gave the subject an interpretation of her Rorschach protocol

assuming this threat to the self-concept would result in anxiety. He found that abstract reasoning (using form b of the above described test for the second testing) was significantly different when measured on a parallel test after the stress condition. Beier concluded "the findings of this study would indicate that individuals who are faced with threat and who are in a state of anxiety show a loss of the 'abstract' abilities or more specifically of visual-motor coordination as measured by the particular instruments<sup>31</sup> employed" (1951, p. 19).

Travers (1955) reported on several studies in which the subjects (695 in total)<sup>32</sup> were categorized on the basis of the Taylor Manifest Anxiety Scale (MAS) into high, middle, and low anxious groups. These classes of subjects were then divided into a threat and a nonthreat group. The threat consisted in presenting the problems as being significant in determining the future as far as the Air Force was concerned, of these newly inducted air force trainees. The threat condition affected significant changes only in the middle anxious group. In three of four studies reported, the changes were in a positive direction; in the fourth study, performance on the tasks declined. The particular task used was 4 individual administrative problems of a practical type which required the subject to cumulate information and arrive at a solution based on the pertinent factors. The fourth group was composed of individuals of perhaps a different background (urban as compared to rural) and it is quite likely they were threatened subjectively, or motivated, to an entirely

---

<sup>31</sup>Beier used a Mirror Tracing Test, the Holsopple Test from which he drew this latter conclusion.

<sup>32</sup>This figure represents an approximation and it is likely that more people actually cooperated in one or another phase of the study. Presentation of the subject sample is vague in the report so that no definite figure could be arrived at.



different degree. Hence, Travers suggested that the increase in motivation resulted in improvement in performance only up to a certain point beyond which it resulted in disorganization or poorer performance (1955, p. 28). In summary, Travers suggested "the effect of threat appeared to depend on the characteristics of the subjects and on the characteristics of the problem" (p. 41). "Since, in solving administrative problems of the type considered, the individual does not reach a definite end point where he knows that he has evolved the best solution he is capable of producing, he is likely to cease work before he has developed the best solution he is able to develop unless his own personal characteristics or external pressures prolong his efforts." (p. 42)<sup>33</sup> As a final note, Travers suggested that greater recognition be given to variables other than intellectual power when studying complex problem solving behavior (p. 44).

In an attempt to clarify the controversy as to whether rigidity is a situational phenomenon or attributable to a generalized personality characteristic, Ainsworth (1958) conducted an investigation of rigidity, insecurity, and stress. He used 120 subjects divided into 4 equal groups matched on the basis of insecurity and defensiveness in general life adjustment. Using a modified Einstellung test, Ainsworth induced stress in different degrees in three groups, the fourth group being a control. His findings are interesting. "When rigidity is defined as failure to shift when the situation demands a shift, it is found to be influenced by both situational factors and by the degree of insecurity experienced by the person in his general adjustment" (1958, p. 72). However, a subjects general feelings of security-insecurity appeared

---

<sup>33</sup>Eysenck (1959) concurs in terms of introverts-extroverts. He found introverts worked with more persistence while extroverts took longer and gave up easier.

to play a more significant part in determining rigidity than did situational factors (p. 74). The author further pointed out that insecurity in the problem solving situation manifests itself in marked tendencies toward disorganization (p. 74). Ainsworth suggested the rigidity is really a defense against such disorganization.

In an effort to shed light on the area of anxiety in relation to efficiency on various factorially pure problems, O'Brien (1957) developed an anxiety scale and noted differences in problem solving under stress-nonstress conditions. Although he desired an anxiety scale which would differentiate anxiety on 3 dimensions--chronic, motor tension, and personal inadequacy--the final scale developed did not include a measure of anxiety expressed as personal inadequacy because of measurement problems. The problems employed were Reasoning (R) and Space (S) of the Chicago Tests of Primary Mental Abilities. O'Brien gave the problems under anonymous conditions, using false names for subject identification, and then he repeated the same problems instructing the subjects to use their real names and inducing stress. Stress was obtained by informing the class of an important and perhaps unreasonable quiz and giving the problems immediately after this announcement in a condescending, hurried manner. Sixty-seven subjects from a classroom situation cooperated in the study. O'Brien's findings were generally negative, with the only significant association found between chronic anxiety and Space problems. O'Brien stated chronic anxiety "is the type that would interfere with any type of ordinary mental functioning provided it had a certain level of difficulty" (p. 36). Although he stated the anxiety has a slowing effect and decreased efficiency was because of the slowness, he suggested that "one's general way of reacting may be more important than one's specific responses" (p. 39).

Sinka and Singh (1959) compared problem solving behavior in high anxious and low anxious subjects. Testing 100 naive college students with the Taylor Manifest Anxiety Scale, the investigators formed high and low anxiety groups by taking the top 20 subjects and the bottom 20 subjects to form the two subgroups. Six novel problems of medium difficulty were administered; 3 were sensori-motor tasks (Substitution Test, Design Sorting, Katona Matchstick Problems), one of which was timed, and 3 were considered mental tasks (Line-Pursuit Test, Mixed Sentences, Number Series). Sinka and Singh found the low anxiety group solved all of the problems in significantly less time, but only the Katona Matchstick Problems, which had a time limit, distinguished the groups in terms of successful solution. On the Katona problems anxiety had a detrimental influence on performance. The authors suggested that the subjects were faced with a novel and relatively complex situation and that they began to anticipate a threat to success. The "anticipatory tension" or anxiety thus generated further raised the drive level on the high anxiety subjects and reached a level at which it became inhibitory making appropriate and integrated behavior more difficult. The researchers also noted that "another factor which contributed to higher time score in the high anxiety subjects was their relative lack of confidence"<sup>34</sup> (p. 4). In many instances the high anxious subjects stopped to check work even when it was correct.

On the assumption that psychological stress leads to rigid behavior, Kempler (1962) proposed to demonstrate that low self-confidence in mathematical ability is associated with rigid behavior in a mathematical problem solving task. Kempler reasoned that low self-confidence should arouse anxiety

---

<sup>34</sup>This observation was also noted by Korchin and Levine (1957) and Weiner and Ross (1956).

which in turn would lead to rigidity. With the cooperation of 101 college students, he was able to form rigid and nonrigid groups of 30 subjects each. Rigidity in mathematical ability was defined using the water jar test (Luchins, 1942). Degree of self-confidence in mathematical ability was estimated using a 15 item questionnaire. Kemper found "the data suggests that low-confidence in mathematical ability is associated with rigidity in mathematical tasks" (1962, p. 31).

The studies thus far reviewed, although they do not deal with the processes involved in cognitive tasks, are important in that they allow inferences to be drawn between personality dimensions and cognitive tasks. Little research has been conducted aimed at finding the relationship between the problem solving process and personality factors. The two studies which deal specifically with this problem were very exploratory in design and their findings must be viewed with caution. In spite of this, they are suggestive.

Noting that cognitive processes are an essential component of adaptive functioning,<sup>35</sup> Blatt (1961) suggested that cardiac rate should vary according to the efficiency of adaptation in a cognitive task. He hypothesized that efficiency in complex mental activity should be characterized by heightened arousal. Blatt had 18 graduate students solve problems on the PSI (See John, 1957 or page 41 of this review for a description) and throughout the procedure the experimenter recorded the subjects cardiac rate. On the basis of the problem solving performance the subjects were defined according to the number of unnecessary questions as efficient or inefficient and 2 equal groups of 9

---

<sup>35</sup>Harris (1950) made a similar observation: "note that almost all of the tools used by the clinical psychologist for diagnostic purposes tap some aspect of cognitive functioning--the T.A.T., Rorschach, Word Association, Wechsler-Bellevue, Vigotsky, Bender Visuomotor Gestalt Test, etc." (Footnote p. 6).

subjects each were formed. Blatt found that "arousal is not a total reaction but, rather, occurs differentially and, in part, at crucial points in the problem solving process" (p. 280). Although initially the cardiac rate was similar for the 2 groups, "there was a highly significant increase in cardiac rate and variability in the efficient subjects while they were attempting to solve the problems" (p. 281). Evidence from retrospective reports suggested the "efficient subjects seemed freer from internal needs and pressures and were better able to attend and appreciate the nuances and subtleties of the problem" (p. 281). The efficient problem solvers clearly had a more objective view and an entirely different attitude toward the PSI task than the inefficient problem solvers (p. 281-81).

Rimoldi, Meyer, Meyer, Fogliatto (1962) explored the interrelationship between some physiological and psychological variables that operate when psychological stress develops as the processes take place (p. 3). Physiological variables were limited to cardiac rate taken during the problem solving behavior. The psychological task was to solve five complex problems developed and analyzed following the Rimoldi method. No stress condition was given; rather, it was assumed the problems were stress in themselves and thus cause arousal. Seventeen male graduates students cooperated in the study. The investigators found a significant decrement in mean cardiac rate between pre- and post-testing baselines but the variability remained constant.

In summary, the purpose of this review has been to survey psychotherapy in terms of a cognitive experience and in terms of therapist-patient relationship. Secondly, studies of problem solving from a strictly cognitive point of view have been surveyed with special emphasis placed on methodology and observations emphasizing personality influence on this cognitive behavior. This

was followed by studies directed at finding the degree to which personality or emotional factors influence, either by interference with or direction of, the problem solving behavior.

The first part of the review of the literature suggested it was not novel to view psychotherapy as having an effect on one's cognitive processes. Studies indicated that one's approach to problems in-therapy can be indicative of outcome (Kirtner, 1959) and of the way treatment will be used (Roth, 1960). Other studies demonstrated that such approaches alter as treatment progresses (Curran, 1945; Rakusin, 1953), but the implication has been that a method other than the Rorschach must be employed to reflect such changes objectively (Haimowitz and Haimowitz, 1952; Rakusin, 1953). That is, without the use of actual therapy data no method which is completely objective has been available. There is evidence to suggest that the Rimoldi technique offers a refinement and an objective method to evaluate this meaningful, way-of-approach aspect of behavior.

There has been evidence accumulating over the recent years suggesting changes which take place as a result of psychotherapy are due to the therapist-patient relationship. Rosenthal (1955) suggested patients take on the moral value system of their therapist; Glad and his associates (1959) indicate the therapist's attitude or frame of reference in relation to mental health concepts are accepted and imitated, and perhaps incorporated, by his patients; and Lennard et al. (1960) demonstrated patient behavior becomes increasingly similar to the therapists. Cartwright and her associates (1956) presented evidence suggesting the patients of a particular therapist become very similar in the patterns they employ in organizing their fantasy life. Because these patients were not in mutual contact, the implication is that the therapist

effects such similarities. Evidence from studies of identification in psychotherapy indicate the patient's self perception alters in the direction of the therapist's self concept or else in the direction of the therapist's conception of the patient (Schrier, 1953). Briskin (1958) further demonstrated that patients became more similar to their therapist in terms of personality traits. These findings suggest that changes that occur on the problem solving task may be due to the patient's becoming more similar to his therapist in this behavior. This implies it would be insufficient to measure changes in problem solving behavior and suggest these alterations are due to a lessening of interfering anxiety, a possibility which is also under study.

Emphasis in this review has been placed on an objective recording and analysis of the processes used in solving problems (e.g., Buswell, 1956; Rimoldi, 1955) rather than to accept inferences about these processes derived from solutions to the problem (Wertheimer, 1959; Duncker, 1945). It has been demonstrated that processes are an important, if not crucial aspect of problem solving (Bloom and Broder, 1950; Buswell, 1956; Rimoldi et al., 1962; Mohrbacher, 1961). Although there are exceptions, people typically appear consistent in their approach to problems (Bruner, et al., 1956; John, 1957; Tabor, 1959; Haley, 1960; Gunn, 1962) suggesting that style in problem solving processes may be a personality dimension. Evidence was presented indicating people rely on past experience and perhaps on personality factors more when dealing with thematic problems than when they solve abstract or conceptual problems (Bruner, et al. 1956). Less reliance is placed on rational procedures in thematic material than in abstract material (Bruner, et al. 1956). It has been obvious throughout this survey that although the researcher was interested purely in cognition, invariably he singled out a personality

characteristic as contributing in some degree to the problem solving performance. Seemingly, a crucial factor in efficient problem solving is a feeling of confidence (Bloom and Broder, 1950; Buswell, 1956; Bruner et al., 1956; John, 1957; Tabor, 1959). Furthermore, there was indication that an appropriate atmosphere for training or altering the problem solving processes of individuals is one which is warm, nonthreatening, or in a word, a counseling atmosphere (Bloom and Broder, 1956; Rimoldi and Devane, 1961; Rimoldi et al., 1962; Curran, 1961).

Studies directly concerned with affective influences on problem solving add documentation to the idea that problem solving behavior is intimately related to personality, and that affective arousal must be inordinately strong before it alters the basic style of the person. Harris (1950) demonstrated rigidity is better understood as a characteristic of the person which only becomes more pronounced under stress. Indications are that situations which are appraised by an individual as being in an area in which he is personally not adequate, or is threatened, that he will respond with rigidity (Fisher, 1950; Beier, 1951; Kempler, 1962). But the crucial aspect is the subjects self-appraisal--his feeling of confidence, adequacy, or security (Cowen and Thompson, 1951; Travers, 1955; Ainsworth, 1958; O'Brien, 1957; Sinka and Singh, 1959). In fact, affective arousal as measured by physiological systems, indicate the arousal state fluctuates throughout the problem solving task (Blatt, 1961), and that after the initial anxiety or tension has been quieted, perhaps by familiarity, the affective arousal becomes regular (Rimoldi, et al. 1962). It is suggested that once the situational stress is no longer present, the problem solving processes are simply the result of the person's style of approach.



The general implication from this review suggests that problem solving may be altered in an appropriate atmosphere, and that such change may be due either to "identification" with the therapist or due to a basic reorganization of the personality. Minimal changes may occur as a result of lessening anxiety in the upper extremes of the continuum. However, it does not appear tenable that radical changes in problem solving processes occur because of diminished anxiety or stress. Hence, before major changes can be expected to occur on the problem solving tasks as a result of psychotherapy, the patient must either learn different ways of approaching problems by means of identification with the therapist, or basic personality reconstruction must take place. The implication is that superficial changes will not be registered by the problem solving task.

## CHAPTER III

## EXPERIMENTAL DESIGN AND PROCEDURES

A. Experimental Design

This investigation is a 6 month (24 week) study to explore the effect of psychotherapy on problem solving processes. The experimental variables for the study are psychotherapy, judgments of change, and problem solving, and for experimental purposes, psychotherapy and judgment of change are considered the independent variables and problem solving the dependent variable.

The specific research hypotheses to be evaluated are as follows:

(1) There will be no significant difference between the patient's approach to the real-life problems at the beginning of therapy and his approach at the end of the experimental period.

(2) There will be no significant difference between a patient's way of approaching real-life problems and judgments of therapeutically derived change. (Judgments become the independent variable in this case.)

(3) If change is measured on the real-life problems, this change will not be in the direction of the patient's therapist, but rather it will be in the direction of effectiveness; that is, he will become more similar to community subjects.

At the beginning of therapy three real-life problems developed by the investigator (See Appendix I) and arbitrarily designated as problem A, problem B, and problem C (presented in Appendix II) were administered individually to the patient, and to the particular individual therapist treating the patient. At the same time, a group of individuals from the same community as the patients but who were not under psychiatric care were administered the same

problems. At the end of the experimental period the patients who were still in treatment were again given the problems and at this time were requested to complete the Post Therapy Rating Scale (presented in Appendix III). The therapist also completed a scale to rate the patients change over the 6 month experimental period (presented in Appendix III). The criterion group of community individuals were likewise requested to take the problems again at the end of the experimental period.

Schematically, the experiment may be presented thus:

<u>Treatment</u>	<u>Patients</u>	<u>Therapists</u>	<u>Criterion Group</u>
Beginning	Problems A, B, C	Problems A, B, C	Problems A, B, C
Experimental Time end	Problems A, B, C	Post-Therapy Rating Scale	Problems A, B, C
	P-T Rating Scale		

The dotted line between Therapists and Criterion Group is used to designate the fact that the experiment employs a compromise or approximation design (See Campbell, 1957; or Appendix IV, Section B). Because this is not a true experimental design, certain precautions must be taken when the results are evaluated (This issue is taken up in detail in Appendix IV).

#### B. The Setting

Three out-patient clinics in Chicago cooperated in the carrying out of this investigation. Patients and therapists were obtained from the Mental Hygiene Clinic, V.A. West Side, The Mental Health Center, Illinois Mental Health Department, and the Psychiatric Out-patient Clinic, Mary Thompson Hospital, a private facility. The 33 patients were distributed as follows: 27 were in treatment at Mental Hygiene Clinic, 4 were being treated at Mental

Health Center, and 2 were in treatment at Mary Thompson Hospital. The 32 therapists had affiliation with these same clinics with the following distribution: 22 were with the Mental Hygiene Clinic, 7 were with Mental Health Center, and 3 were at Mary Thompson Clinic.

The Criterion Group of non-psychiatric community persons were obtained from a school which was offering night courses to adults. The testing was conducted at the school.

### C. Sample Descriptions

1. Patient selection and sample.--Patients were selected in the following manner. After a therapist had agreed to cooperate with the investigation for the six month experimental period, he was requested to indicate when he was scheduled to begin his next new patient. This patient then became the patient for this study unless there were contraindications. An attempt was made to include cases that were representative of patients ordinarily accepted and scheduled for individual psychotherapy, assuming that these patients had been evaluated to be likely candidates to benefit from therapy. It was desirable not to disrupt clinic routine and to include the consecutive case accepted for treatment that satisfied the requirements of the study. Clearly, if the therapist selected special cases for inclusion, such as chronic alcoholics, or poor psychotherapy candidates, the sample would no longer be random but rather it would be biased and the investigation would lose meaning.

When selecting patients, the following definition was used. Any patient regarded as acceptable by the clinic at which the therapist was participating, for intensive individual psychotherapy once a week (or more) for fifty minutes was to be included in the sample provided he was less than 55 years of age. Each therapy case was to be included except for the following:

- (a) Patients who are estimated to be below average intelligence.
- (b) Patients who have been hospitalized for a psychiatric illness during the past three months.
- (c) Patients who have been in group or individual psychotherapy during the previous three months.
- (d) Patients with a history of central nervous system disease or damage, or of CNS seizures.

No attempt was made to include only patients of a specific diagnostic category because it was hoped patients would be classifiable according to the way they approached personal life problems. It was felt that approaches to problems would cut across diagnostic lines and that perhaps problem solving categories or performance would be more meaningful prognostic indicators for the patients. Eventually, it may be possible to assign patients on the basis of their problem solving approach in relation to a therapist's way of solving problems.

The actual experimental sample may be described thusly. Thirty three patients participated in the initial pre-therapy testing. Table I presents the means and standard deviations of age and education for the sample. The median age of the group was 35.7 and the median education was 12.5. Eighty two per cent of the people were Caucasian, the remaining were Negro; 30 subjects were male, three female. Sixty per cent were employed and 82% may be described as being from the middle socio-economic group (Packard, 1959), the remaining from the lower socio-economic group. Fifty eight per cent were married, 9% were divorced, and the rest were single. A large majority of the individuals were from urban communities (82%) and 45% were Catholic; 43% were Protestant.

Table I

Mean and Standard Deviation for Age and Education

Subjects	M Age	$\sigma$ Age	M Ed.	$\sigma$ Ed.
Pre-therapy Pt.	35.9	7.05	11.8	2.70
Post-therapy Pt.	36.4	8.19	12.2	2.48
Community Subjects	36.5	7.87	12.1	.96

Diagnostically, the patient group divided as follows: 58% were diagnosed psychoneurotic, 42% were psychotic. The people with a psychotic diagnosis were all described as being in partial remission. Table II presents the specific diagnoses for the patients and it can be seen that 36% of the subjects or 86% of the psychotic group were diagnosed schizophrenic while 33% of the patients or 58% of the neurotic group carried a diagnosis of anxiety reaction.

Of the 33 patients, 20 (61%) had had prior psychiatric care in a hospital but 67% of the subjects had no prior psychotherapy. Those people who had prior psychotherapy had terminated treatment at least 3 months before the present course of psychotherapy began, and hence were considered to be beginning a new course of treatment.

From the sample of beginning psychotherapy patients, 22 remained in treatment for the experimental period. They may be described as follows, with the mean and standard deviation of age and education of the group presented in Table I. The median age of the patients who remained in therapy was 36.2 and the median education was 12.2. Eighty six per cent of this group was Caucasian; 19 were male and 3 female. A majority of the subjects (59%) were employed and may be described as being in the middle socio-economic status (86%). Sixty four per cent of the people were married, the rest were single. Most of the remaining patients were from an urban area (91%), and 50% were Catholic.

Diagnostically, the patients who remained in treatment throughout the experimental period were 55% neurotic, 45% psychotic. The specific diagnoses are presented in Table II. Fifty per cent of this group had no prior hospital care and 59% had never received psychotherapy at any time prior to the present course of treatment.

Table II  
Diagnoses of the Patient Sample

Category	Pre-therapy		Post-therapy	
	Freq.	%	Freq.	%
Anxiety Reaction	11	33	5	23
Obsessive-Compulsive	4	12	3	14
Neurotic Depression	3	9	3	14
Hysteria	1	3	1	4
Schizophrenia	12	36	9	41
Manic Depressive	1	3	1	4
Psychotic Depression	1	3	0	0



It can be readily seen that no essential differences exist between the initial patient sample and those that remained in treatment for the 6 month experimental period. From the small differences in age and education it may be inferred that those patients who dropped out of treatment were slightly less educated and younger than the patients that remained in psychotherapy.

2. The Criterion Group.--This group of community subjects is labelled "criterion" group because they were given the problems primarily to provide a normative sample with which to score the performance of the patients. This group is not intended to represent a control group and should not be construed as such. However, they may be employed secondarily as a quasi-experimental control group (Campbell, 1961, p. 108) (See Appendix IV, Section B for a discussion of this problem.).

The criterion group was composed of 50 subjects with the group mean and standard deviation of age and education presented in Table I. The median age for the group was 36 and the median education was 12.5 years. This group consisted only of males, 45 of whom were Caucasian (90%). They were all employed as janitors and may be described as being in the low middle socio-economic group (Packard, 1959). They were all from the urban area; 76% Catholic, the remaining being Protestant. Ninety two per cent were married while 8% reported being single.

This criterion group did not differ markedly from the patient sample on age, education, socio-economic status, race, sex, or residence. They may be considered different in terms of religious affiliation, employment status, marital status, and degree of mental health.

3. The Therapist Group.--The therapist group had two functions; one, it provided "expert" norms with which to score the patients, and two, a

subgroup of therapists (14 in number) were scored to enable a comparison between them and their respective patients.

The large, parent therapist group was composed of 32 individuals who were actively engaged in the administration of psychotherapy as a profession. A majority of the therapists were male (88%). Over half (58%) of the therapists were psychologists, all of whom had over one year of psychiatric training. Five psychiatrists (15% of the sample) participated in the initial phase of the study and all had at least 2 years of psychiatric training. Nine of the people were trained social workers (28% of the group); all had at least a masters degree in social work. The larger portion of the psychotherapists (43%) had experience with from 26 to 100 cases and had conducted psychotherapy for 1 to 5 years (73%). Fifty per cent of the therapists had no personal psychotherapy with the other half of the sample varying from 26 to over 400 hours of personal therapy. About half of those undergoing personal therapy were still in progress toward completion. The group may be roughly divided on the basis of orientation with 60% being psychoanalytically oriented while 12 of the 32 (37%) may best be described as client-centered.

Of the 32 psychotherapists, 14 cooperated in the second phase of the experiment by providing patients for the study and making judgments of therapeutic change at the end of the experimental period.

The subgroup of 14 therapists was composed of 11 males (78%) and three females. Fifty per cent of the therapists were psychologists, 42% were social workers and 7% (1 person) was a psychiatrist. Eight of the therapists (57%) had a psychoanalytic orientation, the remaining could be more aptly described as client-centered. A majority of the therapists indicated they had experience with between 26 and 100 patients (57%) and had been conducting psycho-

therapy from 2 to 6 years (70%). Half of the group had personal therapy with about 70% of them not yet finished with their own therapy.

A comparison of the subgroup statistics with those of the larger parent therapist group indicated there are no marked differences and that the smaller subgroup may be considered a representative sample of the larger group.

#### D. Psychotherapy Defined

Intensive Individual Psychotherapy (psychotherapy) is defined as fifty minute interviews given at least once a week. This was to continue the duration of the experiment.

#### E. The Measuring Instruments and Their Administration

1. The real-life problems.--Each individual of the three groups (patient, therapist, criterion) were administered the same three problems. The problems were given individually to each patient and to each therapist while the criterion group was administered the problems in group form. The criterion group was broken into smaller groups of about 15 to 20 and took the three problems at two separate settings. At the end of the experimental period, the patients and criterion group went through identical procedures as in the beginning. However, the criterion subjects were given only two problems at the end of the experimental period in a staggered fashion so that each of the three problems were taken by at least 18 subjects. (18, 19, 22).

The three real-life problems may be described as follows. Problem A deals with a person having difficulty holding his job. The subjects goal is to discover what is behind his difficulty and then offer a tentative solution. There are available for him 40 questions which he may ask to obtain information which will lead to his discovery of what underlies the person's complaint.

The subject may ask any of the questions in any order that he wishes. As soon as a question is asked, the information elicited by the question is available by turning the question-card over and reading the answer given on the back. The subject may ask as many or as few questions as he feels necessary to provide him with the necessary and sufficient information to offer a tentative solution.

Problems B and C employ the same procedure to arrive at a solution but their content is different. Problem B is a marital problem in which the wife is threatening to leave but the husband wishes to prevent this because he is very pleased with his wife. Problem C deals with an individual who is always getting into arguments at the country club to which he belongs. (The detailed problems as actually presented to the subjects are presented in Appendix II).

2. Judgment of therapeutic change.--The Therapist Post Therapy Check List developed by the Pennsylvania State Counseling Center (Snyder, 1953) was used to obtain therapist judgments of change. (The scale is presented in Appendix III.) The scale is composed of 29 items and has a reliability rating of .787. This scale was employed because it is short and has a high reliability, and, even more important, the content of the scale requires judgments which should be related to the problem solving process instrument employed as the dependent variable in this study.

Patient judgments of change were obtained using the P-T Rating Scale developed by the Pennsylvania State Counseling Center (Snyder, 1953). This scale is composed of just 14 items but has a reliability of .765. (The scale is presented in Appendix III.)

#### F. Analysis of the Data

The data obtained employing the Rimoldi technique were analyzed on three

different levels. The data were considered first on the more obvious level of number of cards used by a subject, second in terms of utility scores, and lastly in terms of the sequence of card selection. Each of these ways of looking at the problem solving data will be considered in detail. Before presenting the statistical procedures it is desirable to discuss the three levels at which the data is observed.

The first level of data analysis was that of number of cards. If the researcher considers the number of cards selected as equivalent to the amount of information felt by the subject to be necessary to arrive at an understanding of the situation, an analysis of the data at this level is very meaningful. However, all questions may not be expected to yield the same amount of useful information for a subject. Hence, the second level at which the data were analyzed considered the empirically derived usefulness of a question, technically called Utility Index. To analyze the Utility Index is to consider the questions in terms of popularity or agreement of item usefulness among members of a particular group. The third level at which to view the data is in terms of popularity of selection in a particular order of choice, e.g., as the sixth card chosen. By looking at the questions selected in their sequence, it is possible to evaluate the degree to which a subject conforms with other people in his order of selection or problem solving process. Notice that a subject may select a question and that this choice takes on different value, depending on the level at which the data is analyzed. For instance, in terms of number of cards selected, the choice has equal weight to any other choice, i.e., a card is a card. But in terms of Utility Indexes, his choice may be popular and thus carry much weight or it may be nonpopular and have little value. On the other hand, in terms of sequence, a selection or choice of a

question may be very popular in the third order of sequence but have no value if selected as the tenth question. Thus a particular question has a different value depending on the level at which the data are being analyzed.

The mean and standard deviation of the number of questions used by a subject was calculated for each group of subjects (McNemar, 1955, p. 16; 25). The Student's test was used to evaluate the differences between each group, using both the formula for independent and dependent samples, depending on the groups being compared. That is, comparison between therapists, patients, and criterion subjects were performed using the formula for independent samples while comparisons between performances of the same subjects obtained at different times employed the formula for correlated samples (McNemar, 1955, pp. 108-110.)

A Utility Index is a measure of the expected usefulness of a particular question. It is the frequency with which a card is selected by a particular group divided by the number of subjects in the group (Rimoldi, 1955, p. 453). Each patient was scored on his problem solving performance using Utility Indexes developed from the community sample and from the therapist parent sample. When the Utility Index for each item selected by a subject is added and divided by the number of cards the subject chose, a Utility Score is obtained (Rimoldi, 1955, p. 454). Group means and standard deviations were calculated after the subjects' Utility Scores were obtained, and t-tests for the appropriate type of sample were performed to compare the various performances on this level of data analysis.

The Utility Indexes for the questions were employed in a second way after a modification. The modified Utility Index is the frequency with which a card was selected by a particular group divided by the sum total of selections made by the group (Rimoldi and Fogliatto, 1963).<sup>36</sup> This modification

<sup>36</sup>Personal communication, the formula is unpublished.

renders the  $\sum U_i$  for the total number of cards equal to 1.00, regardless of the number of subjects in a group or the number of observations (selections) the group makes. This allows comparisons across groups to be made which can be tested for significant differences.

The Kolmogorov-Smirnov Two-Sample Test is appropriate after the  $U_i$ 's for each question are ranked, provided the samples are independent. The Kolmogorov-Smirnov test is a nonparametric test of significance which evaluates distances at each step of a cumulative performance or distribution. It is sensitive to any kind of difference (central tendency, dispersion, skewness) in the distributions from which the two samples were drawn. Siegel (1956, p. 157) states that of all the nonparametric tests for any kind of difference, the Kolmogorov-Smirnov test is the most powerful. In this investigation, the researcher is interested in any differences and in either direction when evaluating the independent groups, so the Kolmogorov-Smirnov test may be applied as a two-tailed test of significance. The test focuses on the maximum absolute difference between the cumulative utility indexes (Siegel, 1956, p. 128). The obtained differences ( $K_p$ ) may then be evaluated by using table L of Siegel, 1956, p. 278.

The third level of data analysis consisted of evaluating the actual problem solving process; that is, the selection of questions taken in a specific sequence. The problem solving process score (Sequence Score) for a subject is arrived at by adding the weights for each card chosen when the order of selection is considered, and dividing by the number of cards selected. Weights for each question when order of selection is considered are obtained by dividing the frequency with which a card is chosen in a particular order by the sum total number of selections made by the group (Rimoldi and Haley, 1962).

Once the Sequence Score was obtained for each subject's performance, means and standard deviations were calculated and appropriate t-tests were applied.



## CHAPTER IV

## RESULTS

The presentation of the results will follow a sequence based on the level at which the data were analyzed. First the results of the analysis of number of cards selected by a subject is presented. Secondly the results obtained when analyzing the data in terms of Utility Indexes is offered. This is followed by a consideration of the data in terms of the Sequence Score. The results will be discussed in detail in the next chapter.

The problem solving behavior was first analyzed in terms of number of cards selected by each of the groups of subjects--therapists, patients, and community persons. The means and standard deviations for these three groups of subjects are presented in Table III for all three problems; that is, for Problem A, Problem B, and Problem C. Comparable data are presented for the second testing of the patients who remained in therapy for the experimental period and for the second testing of the community sample. Also presented in Table III is the mean and standard deviation of the 14 therapists who participated in providing patients for the study.

At the end of the experimental period, therapists completed the Pennsylvania State Counseling Center Post Therapy Check List. Employing these ratings as the independent variable, it was possible to divide the patient sample into changes and no-change groups. Ten patients were evaluated as having changed; 12 patients were considered as having made no essential change. The means and standard deviations of number of cards selected before and after the experimental period of psychotherapy by these groups are presented in Table IV. The 11 patients who dropped out of psychotherapy before the experimental period was up are also presented in Table IV.

Table III

Mean and Standard Deviation of Cards Selected  
by Subjects on Problems A, B, and C

Subject Group	N	Problem A		Problem B		Problem C	
		Mean	SD	Mean	SD	Mean	SD
Therapist	32	13.4	6.68	14.2	6.13	19.8	9.80
Therapist Subgroup	14	15.9	8.90	15.9	7.41	22.6	12.34
Criterion <sub>I</sub> *	22	19.8	8.59	17.0	7.89	18.5	8.14
Criterion <sub>II</sub>	22	16.0	9.98	15.9	7.82	19.1	10.92
Patients <sub>I</sub>	33	12.2	6.25	13.1	8.00	16.3	10.37
Patients <sub>II</sub>	22	11.1	8.62	12.7	9.44	14.8	12.51

\* Roman numbers indicate testing period and that the data concerns a complete group.

Table IV

Mean and Standard Deviations of Cards Selected for  
Groups of Patients on Problems A, B, and C

Patient Group	N	Problem A		Problem B		Problem C	
		M	$\sigma$	M	$\sigma$	M	$\sigma$
Change <sub>1</sub> *	10	9.3	5.0	11.4	9.15	15.9	11.82
Change <sub>2</sub>	10	13.0	10.5	14.7	10.11	14.6	10.39
No change <sub>1</sub>	12	12.5	7.23	12.1	5.55	16.0	8.26
No change <sub>2</sub>	12	9.6	3.73	11.0	6.34	14.8	11.78
Drop outs <sub>1</sub>	11	14.6	4.27	15.8	8.40	17.1	10.85

\* The number indicates a sub-group and the testing period.

Tests of significance using the t-test were completed for all of the groups. The t-tests for dependent samples were calculated between first and second testings of the same group while t-tests for independent samples were computed between the various samples. The results of the t-tests applied to the number of cards selected on all 3 problems, and for all group and subgroup comparisons, are presented in Table V.

After all of the comparisons were performed in terms of the mean number of cards selected by the various groups, the Utility Indexes were calculated for each group, including post-experimental period groups, on all problems. The Utility Indexes for each group were ranked from highest to lowest to form a cumulative performance. Absolute maximum differences between the group performances were calculated for each problem and in every combination of groups. These maximum differences are presented in Table VI. The Kolmogorov-Smirnov Two-Sample Test was employed to evaluate the significance of these differences.

Because of the constellation of significant differences on the mean number of cards selected and the differences on Utility Indexes which reached significance, only Problem B was analyzed in more detail. The rationale underlying this decision will be presented in detail in the next chapter.

The problem solving behavior on Problem B of those patients who remained in treatment were scored in terms of Utility Indexes on both the pretherapy and post-experimental period performances. Two Utility Scores were obtained. One was based on the performance of the total therapist sample, and the other Utility Score was based on Utility Indexes derived from the community sample. Hence there were four scores for each patient; pre-therapy Utility Scores from therapist norms and from community persons norms; and second testing utility

Table V

Student t Values for Cards Selected on  
Problems A, B, and C

Comparison	Problem A	Problem B	Problem C
	t test	t test	t test
$t_I^a$ with $t_s$	.99	.79	.80
$C_I$ with $C_{II}$	2.04 <sup>a**</sup>	1.25	.06
$P_I$ with $P_{II}$	.06	.67	.60
$t_I$ with $C_I$	2.83 <sup>**</sup>	1.43	.48
$t_I$ with $P_I$	.80	.61	1.38
$t_I$ with $C_{II}$	1.04	.88	.23
$t_I$ with $P_{II}$	1.13	.69	1.61
$C_I$ with $P_I$	3.55 <sup>*</sup>	1.75 <sup>a**</sup>	.78
$C_{II}$ with $P_{II}$	1.62	1.19	1.13
$ChP_1$ with $ChP_2$	2.05 <sup>***</sup>	2.68 <sup>a*</sup>	1.24 <sup>b*</sup>
$NCP_1$ with $NCP_2$	1.45	.55	.32
$ChP_1$ with $NCP_1$	1.13	.21	.02
$ChP_2$ with $NCP_2$	1.00	1.00	.04
$ChP_1$ with D.O.	2.49 <sup>***</sup>	1.03	.23
$NCP_1$ with D.O.	.80	.96	.34

<sup>a</sup>t indicates therapist group;  $t_s$  is the therapist subgroup; C indicates the community population (sub<sub>I(1)</sub> or II(2) indicates the testing session); P is the patient group. ChP is the change patient group; NCP is the no change patient group; and D.O. is the drop out patient group.

\* significant  $P > .001$  (t-test)

\*\* significant  $P > .01$

\*\*\* significant  $P > .05$

<sup>a</sup>\* significant  $P > .025$

<sup>a</sup>\*\* significant  $P > .10$

<sup>b</sup>\* significant  $P > .15$

Table VI

Greatest Differences on Ranked Cumulative Utility  
Indexes Between the Three Groups of Subjects  
on Problems A, B, and C

Comparison	Problem A	Problem B	Problem C
	$K_D$	$K_D$	$K_D$
$t_I^a$ with $P_I$	.05	.09*	.06
$t_I$ with $C_I$	.04	.10**	.05
$P_I$ with $C_I$	.04	.04	.05
$P_I$ with $P_{II}^b$	.04	.02	.05
$C_I$ with $C_{II}^b$	.05	.08	.05
$t_I$ with $P_{II}$	.02	.06	.04
$t_I$ with $C_{II}$	.06	.03	.08
$P_{II}$ with $C_I$	.02	.05	.03
$P_{II}$ with $C_{II}$	.04	.05	.07

\* Significant  $P > .05$  level (Kolmogorov-Smirnov test)

\*\* Significant  $P > .01$  level

<sup>a</sup>  $t_I$  indicates the therapist group;  $P_I$  indicates the first testing of the patient group;  $P_{II}$  the second testing of patients; C is the community group tested on two occasions.

<sup>b</sup> These groups are correlated so the Kolmogorov-Smirnov test is not strictly applicable.

scores from both of these norms. Since these were correlated samples, differences between the first and second performance in terms of the Utility Scores on the two norms were calculated. The mean of the differences and the error estimate as well as the t-test values were found and are presented in Table VII. Only one t-value was significant ( $p > .005$ ); that of the change group scores based on therapist Utility Index. However, this change is in the opposite direction of the prediction (Hypothesis III).

The patient performance on Problem B was further studied in terms of problem solving process (order of selection). The Sequence Score was employed for this purpose. Patients who remained in treatment were re-scored on the therapist and on the community population process weights. The performance of the patients, in terms of process was summarized using a Sequence Score based on each normative group. Again, since the same persons were involved in both testing periods, differences were obtained and the mean of the differences was evaluated with a t-test. The mean of the differences, the error estimate, t-test values, and the probability level for both norms are presented in Table VIII. Although none of the groups reach a probability which could be considered significant, a trend in the same direction as was found on the earlier analyses was found. That is, the change group altered their problem solving process behavior on the therapist norms more than the no-change group, and there was no essential alteration in terms of the community norms. Unlike the significant finding when Utility Scores were analyzed, the changes on the Sequence Score (process scores) were in the predicted direction.

These results will be studied more closely and discussed in terms of the hypotheses of this study in the next chapter.

Table VII

Mean Differences, the Standard Error of the Differences,  
and t Values for Two Utility Scores<sup>a</sup>  
for the Patient Groups on Problem B

Patient Group	N	Therapist Norm Utility Score			Community Norm Utility Score		
		M <sub>D</sub>	S <sub>M<sub>D</sub></sub>	t	M <sub>D</sub>	S <sub>M<sub>D</sub></sub>	t
Patient I-II	22	.011	.022	.52	.008	.019	.43
Change <sub>1-2</sub>	10	.023	.005	4.60*	.001	.023	.04
No change <sub>1-2</sub>	12	.002	.035	.05	.012	.026	.45

\* Significant  $P > .005$

<sup>a</sup> Utility indexes were developed from the therapist sample and the community sample.



Table VIII

Mean Differences, the Standard Error of the Differences,  
and t Values for the Two Sequence Scores<sup>a</sup>  
for Patient Groups on Problem B

Patient Group	N	Therapist Norm Sequence Score				Community Norm Sequence Score			
		M <sub>D</sub>	S <sub>M<sub>D</sub></sub>	t	P >	M <sub>D</sub>	S <sub>M<sub>D</sub></sub>	t	P >
Patient I-II	22	.273	.37	.74	.25	.020	.20	.10	.500
Change 1-2	10	.490	.72	.68	.30	.042	.36	.12	.500
No change <sub>1-2</sub>	12	.089	.27	.33	.40	.001	.18	.01	.500

<sup>a</sup> A Sequence Score was obtained based on both the therapist sample and the community sample.

## DISCUSSION

This chapter will focus on the hypotheses of the study, considering the results in relation to each of the three hypotheses. The results will be considered in the order in which they were presented in Chapter IV. Hypothesis I will be considered first.

The first hypothesis was: There will be no significant difference between the patient's approach to the real-life problems at the beginning of therapy and his approach at the end of the experimental period.

Considering the mean number of cards selected by the pre-treatment and post-period groups of subjects, the patient group does not alter significantly (See Table III and Table V). However, looking across the mean number of cards selected on each problem, a consistency exists with the patient group which is not seen when the criterion or community group is considered. The patients consistently used fewer cards on the second testing than on the first. Also, they required more questions on Problem B than Problem A, and still more on Problem C than either of the other two problems. Neither of these observations hold true for the criterion group.

Considering cards as questions and therefore as requests for additional information, the patients desired less information after the experimental period than before that time. Although the differences do not reach significance, it should be noted that the change trend is not in the direction of either the therapists or community persons. Both groups consistently required more information than the patient groups, on all problems.

The significant differences reported in Table V on Problem A in relation to the large groups require further discussion. The criterion group differed significantly ( $p > .10$ ) on their two performances. Also, the criterion

group's first problem solving performance on Problem A differed significantly from the therapist group ( $P > .01$ ) and the patient's first testing ( $P > .001$ ). However, on the performance obtained in the second session, the criterion subjects were no longer significantly different from either therapists or patients second performance. It appears that criterion subject changes rather than patient changes can best explain the fact that patients and criterion persons were no longer significantly different on Problem A after the experimental period.

The significant finding on Problem B between the first testing of patients and criterion group ( $P > .10$ ) which disappeared after the second testing is also confounded. The means presented in Table III indicate changes took place in both populations so that it is not possible to say the change observed is due to treatment. The change may be due to the second testing effects. No significant change is recorded on Problem C so it does not require further discussion.

In terms of number of cards selected, the first null hypothesis can not be rejected. However, further evaluations were made between the various groups on all three problems. The Utility Indexes for the cards selected were compared and tested for significance. Table VI indicates that significant differences were found on Problem B only. The therapist group differed significantly from both the patient group ( $P > .05$ ) and the criterion group ( $P > .01$ ) on first testing. These differences disappear when the second performances are considered. However, again greater change takes place in the community group than in the patient group and the patient data is therefore confounded. Since a larger change is found on the community group, there is no basis for suggesting the patient changes are due to therapy.

The first hypothesis may not be rejected either in terms of number of cards selected or Utility Indexes. There is no indication that exposure to psychotherapy alters a persons approach to real-life problems in terms of either amount of information or kind of information.

The second hypothesis of the study states that there will be a significant difference between the two performances on the problems for those patients who have been judged by their therapists to have changed, but not for patients judged not to have changed. In evaluating this hypothesis, the therapist judgments of change are considered the independent variable.

The mean number of cards selected in relation to change and no-change subjects are presented in Table IV and t-tests are in Table V. Notice that change patients consistently use more questions after treatment than before while the no-change subjects do just the opposite on all three problems. The change patients are unique in this respect. The patients as a complete group and the criterion group behave just the opposite. The only changes which are significant took place in the change group: Problem A,  $P > .05$ ; Problem B,  $P > .025$ ; and Problem C,  $P > .15$ .

The second hypothesis of the study is therefore confirmed and without confounding effects. The differences cannot be explained on the basis of second testing since none of the other groups behaved similarly. In this design with judgments of change being the independent variable, the no-change subjects may be considered a control group and hence the changes observed in the other group may be attributed to effects of psychotherapy. It can be concluded that patients who have been judged to have changed by their therapists alter their approach to solving real-life problems by asking more questions.

By asking more questions a person is obtaining more information to evaluate and hence he has more information upon which to arrive at an understanding. It might be suggested that with treatment, the change patient is able to look at a real-life problem from different points of view and thus he requires more information. The question arises as to the kind of informational changes which occur over treatment, and this leads to the third hypothesis of this study.

The third hypothesis to be evaluated in this investigation relates to the problem of what brings about the changes--identification with the therapist or a lessening of interference with effective behavior. The null hypothesis suggests the change will be in the direction of effective behavior (community population) rather than in relation to the therapist.

To evaluate the third hypothesis, the change and the no-change groups were scored on Utility Indexes for problem B based on the therapist norms and the community populations norms. By evaluating the scores obtained by the groups before therapy and after the experimental period, it is possible to suggest the type of change which was recorded in relation to hypothesis II. The mean of the differences and the t-test values are presented in Table VII in Chapter IV.

The data in Table VII indicate there were no overall changes by all of the patients in therapy. Also, the no-change group show no significant change on either the utility scores derived from therapists or those derived from the community population. However, the change group of patients were significantly different ( $p > .005$ ) on the therapist utility index scores, while there was no alteration in their scores based on the community utility index. That is to say, that patients who were judged to have changed in treatment utilized

questions and therefore information significantly different after treatment than before treatment. The kind of information they used differently was the information the therapist group had evaluated as being useful. However, the alteration was in the opposite direction from that predicted; that is, they used the therapist valued questions to a less degree. This finding becomes even more significant when it is recalled that these same people asked significantly more questions and therefore had a higher probability of selecting items with therapist utility value. It is difficult to reconcile this finding. Either this is a chance finding or something meaningful took place between the therapists and their patients. The level at which the difference is significant makes it highly unlikely to be a chance finding. At this point, it appears more reasonable to assume the patients did become more discriminating in their selection of questions and that this discrimination had something to do with their therapists. The data suggests they knew what was meaningful and avoided it. The reason for this behavior must go unanswered, but perhaps after 6 months of treatment the patient felt treatment should be completed and began a process of denial in order to feel psychological well-being. If such a process was going on, to ask a more important question might upset the equilibrium. However, further research and analysis will need to be conducted before an answer can be offered.

In spite of the contradictory finding in relation to Utility Indexes, further analysis was performed on the patient groups performance on Problem B. The actual problem solving process (order of questions asked) was calculated and t-tests were applied. Table VIII contains the results of this analysis. As can be seen, no significant differences were found on either Sequence Score in any group. However, a trend in the direction of the significant findings

on the number of cards and Utility Indexes is apparent. That is, there is no suggestion of change on the problem solving process when scored on the community population. There is a tendency, however, for the change group to alter their approach when scored on the therapist norms but this tendency is not seen in the no-change group. Furthermore, on this measure, the movement is in the predicted direction. That is, when the order of selection of the questions is considered, the change patients tend to become more like their therapists but not more like the community population.

To summarize the results in relation to the third hypothesis, there were no alterations in the problem solving behavior which would indicate a change in the direction of effectiveness. There are significant findings on the therapist norms which indicate something happened in therapy to effect a change on this criterion. The trend found on the Sequence Score suggests a process of identification with the therapist in terms of ways of going about a real-life problem has begun after 6 months of therapy. The highly significant finding in the Utility Scores is in a direction opposite to that expected if identification is to explain the changes observed. Perhaps these seemingly contradictory findings on the change group indicate that these patients have learned what is meaningful information (the Utility Index) but have not yet realized how it can be most meaningfully organized (Sequence Score). If this were the case, they would still be grappling with how to make sense of the information. In so doing, they select less cards which have high utility value according to the therapists, and hence the significant reversal on the Utility Index is obtained. Those items they do select which have utility according to therapists, however, are selected in the meaningful order and hence the trend toward significance on the Sequence Score.

In conclusion, although the third null hypothesis must be rejected, the alternative hypothesis must be accepted with caution. Perhaps the changes are due to an identification process, but they may be due to other learning processes taking place in psychotherapy. If so, they remain related to the therapist in some unknown way.



## CHAPTER VI

## SUMMARY AND CONCLUSIONS

The purpose of this study was to test whether one result of a course of psychotherapy was an alteration in approach to real-life problems. Furthermore, it was the aim of the researcher to demonstrate that if changes were recorded, they could be interpreted as due to the patient's identification with his therapist.

A review of the literature suggested that problem solving may be altered in an appropriate atmosphere, and that such change may be due either to "identification" with the therapist or due to a basic reorganization of the personality. Although minimal changes may occur as a result of lessening anxiety in the extremely anxious person, it does not appear tenable that radical changes in problem solving processes occur because of diminished anxiety or stress. It was suggested that before major changes can be expected to occur on the problem solving tasks as a result of psychotherapy, the patient must either learn different ways of approaching problems by means of identification with the therapist, or basic personality reconstruction must take place. The research reviewed implied that superficial changes would not be registered on the problem solving tasks.

Three real-life problems were presented to patients, therapists, and a community population in a 6 month pre-therapy-post-therapy experimental design. Thirty three patients, 32 therapists, and 50 community subjects cooperated in the experiment. Twenty two patients remained in therapy for the experimental period.

The three problems were analyzed using the Rimoldi technique of problem

solving process analysis. All problem solving performances were analyzed in terms of number of cards selected and Utility Indexes and all groups were compared either by applying the t-test or the Kolmogorov-Smirnov test. Patients were later divided into change and no-change groups based on therapist ratings of change. These sub-groups were also studied in terms of the above described comparisons. They were studied in finer detail on Problem B in terms of Utility Scores and the Sequence Scores.

The findings of the study indicate that patients do not alter their problem solving approach due to being exposed to psychotherapy. However, when the patients were divided into two groups on the basis of therapist judgments of change, significant alterations became apparent. Those patients judged to have changed as a result of psychotherapy also altered their approach to the real-life problems, while the other group of patients did not. Detailed analysis of the patient groups on Problem B indicated the changes were due to therapist-patient interaction, but to label the significant finding as due to a process of identification may not be entirely accurate. Seemingly the patients did learn from their therapists, but if identification is considered learning as seen in imitation or by copying the behavior of another, this does not seem to have occurred. If one accepts the definition of identification as "accepting as one's own the purposes and values of another," it could be argued the patients had learned by identification with his therapist.

## APPENDIX I

The Rationale and Development of the  
Real-Life Problems

As an instrument to measure the mode of approaching and solving social situations, three real-life problems were developed. In this appendix the rationale and development of these problems is discussed.

In his classical study of practical problems, Duncker defines a problem as arising "when a living creature has a goal but does not know how this goal is to be reached." (1945, p. 1). Obviously there are an infinite variety of problems which may fit this definition. The experimenter must therefore decide what type of problem is most appropriate for his purpose. Problems which are most likely to reflect whatever the experimenter is attempting to measure should be chosen. If one is attempting to measure peoples ability to handle algebra, it seems most probable that an algebra problem would be the best indicator of this ability. Analogously, because this study deals with psychotherapy and psychotherapy may be thought of as concerning itself with problems of living (Szasz, 1957), it seems most probable that a problem which deals with real-life situations would be the best indicator of ones capacity to deal with them. Thus, it was decided that problems of an interpersonal (or life-like) nature were advisable.

There were also other reasons for the choice of real-life problems. Previous research indicated that the manner in which people approached their own problems in client-centered therapy proved to be indicative of how they would use the therapy experience (Roth, 1960). It was also shown that judgments of change resulting from psychotherapy could be predicted from the way

clients approached their problems initially (Kirtner, 1959). Hence, for this study, real-life problems appear to be most appropriate.

It was desirable to assimilate the psychotherapy situation as closely as possible in order to maximize the probability that approaches to the experimental problems would be similar to the approach employed with one's own problems. Thus it was desirable to develop problems in those areas in which people frequently seek help. Experience suggests four areas in which patients frequently have difficulties: (1) interpersonal relations, (2) family relations, (3) vocation, and (4) sex. Psychoanalytic theory, on the other hand, suggests that any psychological problem involves either aggressive or sexual instincts (Fenichel, 1945, p. 60). With this in mind, it was decided to develop three problems. One problem was to deal with interpersonal relations and have aggressive impulses as the disturbing element; the second was to reflect family relations and sex, the latter being disruptive or dysfunctional. In the third problem it was desirable to deal with a vocational difficulty because frequently this is the area in which a patient first becomes aware of the fact he is not functioning as effectively as he may; or at least, it is the area about which he feels it is safe to talk.

An instrument or test (problems) may be developed either theoretically or empirically (Guilford, 1954). When a test is developed on theoretical grounds the underlying assumptions and hypotheses are arrived at on the basis of some theory. An example of such a test is the REP test which is directly derived from Kelly's Construct Theory (Kelly, 1955). Tests which are built empirically typically present the subjects with a pool of items and then correlate the items with success or failure in order to eliminate the items which are ambiguous or add little to the total test's ability to discriminate.

Items used in an instrument may also be derived theoretically or empirically. One may theoretically say that people will utilize a certain attribute more than another attribute when distinguishing objects. Bruner, et al. (1956) used this approach. They developed sets of cards containing figures with four attributes (size, color, type of figure, relationship) and explored which were employed under various circumstances most prevelantly. As one can readily see, this allows hypothesis testing but it is a rather limited approach. The experimenter can very seldom say much about what the subjects do. The investigator typically simply groups the subjects according to pre-conceived categories. In view of the fact that little has been done in the area under investigation, the empirical approach would appear to be more fruitful. With this method the items are developed in terms of the parameters of the problem, based on observation. An example of such construction is Buswell's study of patterns of thinking (1956). Buswell began to develop his instrument by having his first group of subjects "think out loud" so that they would reveal as completely as possible the processes employed in solving problems. From the data obtained, it was possible to isolate 81 elements used by the subjects to solve the problems. Buswell then began to utilize these 81 elements to distinguish different processes.

The development of the real-life problems used in this study employed an empirical approach. However, in the development of the problems, cues were later taken from other studies in order to include various possible dimensions in the problems.

The first step in the development of the personal-life problems was to formulate a situation in such a way that it could be presented to subjects as a problem to be solved by asking questions. After a large number of attempts

using a variety of hypothetical situations and meeting with failure, the researcher held in mind three different patients he had known through psychotherapy over a year and who he knew very well. From their case histories the experimenter took a problem area which coincided with the desirable areas discussed above, and formulated a problem statement. The three problems, designated arbitrarily as A, B, and C were as follows:

**PROBLEM A:** An individual is having difficulty holding his job. He says he enjoys his work, and has the ability and aptitude to do the work. Your task is to discover what is behind his complaint, and offer a tentative solution.

**PROBLEM B:** An individual's spouse is threatening to leave him, and the person desperately desires to prevent this for he is very content with his spouse. In fact, he cannot understand why this should be happening to him. Your task is to discover what is behind the threat of separation, and suggest a solution.

**PROBLEM C:** An individual belongs to a country club which is not particularly exclusive. He likes to belong to this club, and yet, each time he goes there, he finds himself in the middle of an argument which often leads to his exploding to the point of a fist-fight. He wants to get along with the other members and to make friends. He has heard that they are considering his expulsion from the club due to his behavior. He cannot understand what he is doing which is leading to all of the difficulty, and would like your assistance, as a close friend. What information would you want to know to help him understand his difficulty, and what is your solution.

In order to obtain a pool of items (questions), the problem statements above were given to subjects without questions and with the following instructions:

**INSTRUCTIONS:** On the sheets of paper you have are three hypothetical problems. Your task is to learn all the relevant facts about the situation which you feel are necessary to gain a clear understanding, and to arrive at a tentative solution to the problem.

In order to do this, you may gather information by posing questions which you would want answered. Write the questions down, and then provide a possible answer to this question. In this manner you will have a series of questions, and information thus obtained with which to suggest a solution to the problem.

In order to solve the problem, suppose you are a good friend of the individual with the difficulty, and that he has come to you seeking your help

with it.

Write your age, sex, and education with your major emphasis on the papers.

Thank you for your cooperation.

The subjects employed in this phase of the problem development were 55 in number, divided into three different populations as follows: 35 were college freshmen, 10 were graduate psychology students and clinical psychology trainees, and 10 were psychiatric social worker trainees.

From the protocols obtained from this sample, 79 questions were gleaned for problem A, 111 questions for problem B, and 100 questions for problem C. The frequency with which any one question was asked ranged from 1 to 19 with the majority of questions having been asked by either two or three persons. There were no obvious differences between the three populations in regard to the kinds of questions asked with one exception. The students of psychology and social work were inclined to ask an open-end question and thus to enumerate fewer specific questions than the under-graduate sample. Because of this, the protocols obtained from the under-graduate freshmen were more useful in the development of the problems.

The writer's experience with the Rimoldi technique (Rimoldi, Meyer, Meyer, & Fagliatto, 1962) and the research conducted by Gunn (1962) indicates that the Rimoldi method becomes rather cumbersome when the number of questions used is extremely large. Thus, it was desirable to eliminate many of the items which were obtained by the above described procedure. It was arbitrarily decided to drop any item from the pool of questions which was not asked by at least 4 subjects. Applying this cut-off point left 34 items relative to problem A, 32 questions for Problem B, and 45 items asked to solve Problem C. Studying these empirically obtained items, it seemed highly probable that they

would not differentiate the three groups of subjects under study unless the wording was altered or more items were included for each problem on a theoretical basis. Both of these steps were taken, and problem A has 40 questions, problem B has 36, and problem C has 62 items.

The theoretical items which were added to the questions obtained empirically were based on the findings of Kirtner (1959), and Roth (1960), with consideration given to the study by Gunn (1962). The two former studies demonstrated that personal life problems may be viewed on a continuous scale. The scale may have one pole represented by people who deal immediately in terms of feelings and have localized their difficulty while at the opposite pole may be rated those individuals who deal with problems as though they are almost entirely external to them. Hence in the three problems which were being developed, it was desirable to have questions concerned with feelings and others that were entirely affect-free.

Two of the problems developed by Gunn for his study (1962) were accessible to the writer. From the tables presented in his dissertation it was possible for the researcher to tabulate the frequency with which his questions had been chosen. It was then a simple matter to select the most discriminating questions from the 2 problems available. The 36 most discriminating items were isolated in this way. However, many of these questions were already in the pool of items, or if they were not, the questions were too specific to fit into the array of items already accumulated and hence seemed out of place. Consequently, this study of the data accumulated by Gunn proved of little practical value. But, it did suggest that discriminating items were already available in the item pool. Thus, all of the items which were added on theoretical grounds generated from the works of Kirtner and Roth mentioned earlier.



Six questions were added to problem A, 4 items were added to problem B, and 17 items were added to problem C.

So far in this report we have been concerned with the problems and the questions. Obviously with questions being considered the test items and having obtained them empirically from a number of people, the answers given by the subjects were seldom in agreement. There are many ways of perceiving the problems so that the items pooled were generated from people who had entirely different things in mind. It was desirable to have all of the answers consistent and representative of one individual. To obtain this end, the experimenter formulated the answers to all of the questions. As mentioned above, the problems represented actual difficulties faced at one time by three different patients of the researcher. The answers to the questions consequently were based on information and understanding of these three people obtained over a long period of intensive, uncovering psychotherapy. At first glance, some of the information given in the answers appear contradictory. However, this is not the case and the apparent contradictions make sense when a deeper understanding of the problems is obtained.

The life-situations which the problems reflect came from the three individuals described below. Problem A was formulated in relation to an individual who chronically had difficulty holding any job for any duration. He was constantly getting into difficulty with fellow employees and supervisors due to his extreme suspiciousness and conviction that others were unhappy with his work. He was sure they actively sought his dismissal. These thoughts had paranoid elements but also reflected his deep feelings of inadequacy and worthlessness. These same feelings were equally devastating in his relationship with his wife. He was constantly afraid she was going to abandon him and delt

with these fears by constantly trying to please her or find signs of her affection for him. With others he was extremely guarded and he was hypersensitive to feelings of rejection or dislike. The patient was diagnosed chronic anxiety reaction with the primary symptom being impotence.

Problem B reflected a difficulty encountered by an individual who desired so desperately to please his equally disturbed wife that he burdened himself with work from 5 a.m. till dark. The weak, rejecting, and depreciating self-concept of the person made him vulnerable to any suggestion of inadequacy and when the depreciation was of any duration, his ego defenses weakened to the point where he experienced extreme anxiety. When this occurred he would scream for his overly protective wife to help him. He soon found that with this behavior he could have many of his narcissistic needs gratified and he indulged in it until his life became completely constricted to virtual invalidism with his wife doing all of his work. The patients diagnosis was phobic reaction manifested by a fear of a heart attack.

Problem C was based on an individual with primary symptoms of bronchial asthma and depression. There were many obsessive-compulsive features in his personality. In his striving for a better social and economic position for himself, he employed the characteristic defenses of the compulsive-denial, rationalization, isolation--and he utilized magical thinking and fantasy to alter the world to fit his needs. Basically, the individual had a very passive orientation and lacked a clear masculine identity. His interpersonal behavior was fraught with conflict and indecision--a desire to control and yet to be controlled. He was in a constant struggle for self-identity and self-worth. His diagnosis was depressive reaction with obsessive-compulsive features.

The three personal life problems developed in the above described manner are presented in their final form in Appendix IV. The items in each problem have been arranged following different schema, in terms of the content covered by a question. This enables various types of analyses to be applied with relative ease to the data. The items of problem A are divided equally into four groups of 10 questions. Group one consists of items concerned with work, the second group deals with relations at work, the third class explores the home relations, and the fourth group contains information regarding the person's self-concept. Problem B is also equally divided into four groups but with only nine questions in each group. The first group deals with the person with the problem, the second group explores the attributes of his wife, the third group allows an exploration of material concerning both he and his wife, and the fourth group deals with information about their relationship. Problem C contains items of information concerning the club, the club members, and the individual. These questions can in turn be viewed as interacting with the other groups of questions or with work, wife, and the family.

## APPENDIX II

## The Real-Life Problems

## PROBLEM A

Directions: An individual is having difficulty holding his job. He says he enjoys his work, and has the ability and aptitude to do the work. Your task is to discover what is behind his complaint, and offer a tentative solution.

To do this, suppose you are a good friend of the person with the difficulty, and that he has come to you seeking your help with it.

In order to discover what is behind his complaint, you may gather information by asking any of the questions in any order that you want. Ask only those questions which you feel will provide the necessary and sufficient information so that you may solve the problem. Answers to the questions are on the back of the card.

BEFORE YOU BEGIN, READ OVER ALL OF THE AVAILABLE QUESTIONS.

- |  |  |
|--|--|
| 1. What kind of work does the individual do?                           | A. He is an insurance claims adjuster.   |
| 2. Does he like the people he works with?                              | A. At times he feels fondness for them, at other times he does not.  |
| 3. Does he have any difficulties at home?                              | A. There are frequent arguments between him and his wife which typically end by one of them taking a walk for about an hour or going to a movie.   |
| 4. Has he been able to find plenty of reasons to explain his failures? | A. Usually he is convinced that his failures are due to other peoples negligence or their inability to truly understand whatever problem is at hand. He always feels he has a good reason for his difficulties, what ever they may be. |
| 5. What is his past work experience?                                   | A. He has worked in the insurance business throughout his work history.  |

6. Is there something he would rather do?  
A. At times he wonders if he wants to work at all. As long as work is necessary, he prefers to stay in the insurance business.
7. Does he make enough money?  
A. He makes about \$100 per week.
8. Are there any opportunities for advancement?  
A. Yes, he may become department head with a salary upward from \$10,000.
9. Is he willing to take any responsibility?  
A. He says that he is.
10. Is he concentrating fully on his job?  
A. His job does not require much concentration.
11. Is he slipshod in his work?  
A. At times he overlooks important considerations.
12. Does the work bore him?  
A. Yes, he frequently feels restless and bored and believes the work causes it.
13. Does he come late to work?  
A. Typically he is late 2 - 3 times a week.
14. Does he work with the same people daily and know them well?  
A. He works with them daily. He knows them only from work.
15. Does he feel others do not do their part?  
A. He often feels he does more than others in the office.
16. Does he feel overworked?  
A. He feels he does more than he should, but others tend to think of him as lazy at times. At other times he is considered a good worker.
17. Is he critical of others work?  
A. He often feels others do not do their work properly.
18. Does he get along with his fellow employees?  
A. His fellow employees say he is a good worker, but at times he gets into heated arguments with them.
19. Does he get into any serious arguments at work?  
A. At times he gets into heated arguments.
20. Is there any particular person at work with whom he does not get along?  
A. There is one woman, the personnel manager, with whom he is constantly arguing and complaining about.

21. Does he have trouble with the supervisor?  
A. He does not agree with the supervisor's criticisms and tells him so. The supervisor feels challenged and reacts with authority.
22. Does the supervisor complain about this work?  
A. Among others, the supervisor feels the individual does not perform his work thoroughly.
23. Does he discuss problems with his wife?  
A. Although he converses much with his wife, and tells her of some of his difficulties, he does not like her to do more than listen to his problems.
24. Does his wife want a better position for him?  
A. She feels he should be in a supervisory position by now and is very angry at the insurance company for not promoting him.
25. Are there any financial troubles?  
A. There are many bills so it is nearly impossible to save any money.
26. Does his wife object to his living conditions?  
A. She is quite content with the arrangement but wishes they had a larger home so her mother could have more privacy.
27. What are the ages of himself, his wife, and the children?  
A. He is 35, his wife is 29, and they have a son 5 years old and a daughter 3 years old. Neither parent desire any more children.
28. Does his work schedule keep him from his children?  
A. No, he is home by 5:30 each work day and has the week-end free.
29. Does he feel his wife is sexually demanding?  
A. He has little to say about sex. He gives the impression that he wants to convey the idea that all is well in matters of sex.
30. Does his wife feel he is too passive?  
A. She often wishes he would take the initiative more frequently and that he would make decisions more quickly.
31. Does he feel his wife is too aggressive?  
A. He idealizes his wife for her competence and her ability to handle difficult situations well.
32. Has he had a physical check-up recently?  
A. He had a thorough physical last month; all results were negative.

33. How much education does he have? A. He has a college degree in business administration.
34. Does he get angry when people say things with which he does not agree? A. Yes, he usually feels his views are correct.
35. Does he feel under-rated? A. Generally he feels people do not deeply appreciate his abilities.
36. Has he had any trouble with authorities? A. He repeatedly has trouble with authority figures and often gets stopped by police for speeding.
37. Does he have a drinking problem or the like? A. He drinks socially and does not feel he has any problem in controlling it. However, when he drinks he becomes quite hostile toward others, especially his wife.
38. Is he usually the one to make the necessary decisions when he is with another person? A. He feels he is easy to get along with and so usually is quite willing to do whatever his companion enjoys. At times he demands that others do as he wishes.
39. Does he feel people like and respect him? A. He is quite sure people like him but he does not understand why. Others often seem to place much importance on what he has to say.
40. Does he belong to any social organizations? A. He belongs to the Athletic Club.

## PROBLEM B

Directions: An individual's wife is threatening to leave him, and the person desperately desires to prevent this for he is very content with his wife. In fact, he cannot understand why this should be happening to him. Your task is to discover what is behind the threat of separation, and offer a tentative solution.

To do this, suppose you are a good friend of the person with the difficulty, and that he has come to you seeking your help with it.

In order for you to discover what is behind the difficulty, you may gather information by asking any of the questions in any order that you want. Ask only those questions which you feel will provide the necessary and sufficient information so that you may solve the problem. The answers to each question is to be found on the reverse side of the card.

BEFORE YOU BEGIN, READ OVER ALL OF THE AVAILABLE QUESTIONS

1. What is his family background and how were his family relationships?
  - A. He came from a family of 5, and he was the youngest having 2 brothers and 2 sisters. His father is three years older than his mother who was 32 at the time of his birth. He feels his second oldest sister, 3 years older than he, was always closest to him. He has always felt respect for both of his parents, but never very close to either of them.
2. Is he too domineering?
  - A. He often wants his own way, and when others oppose him he tries to persuade them to see things his way. He does not feel that he is domineering, but only aggressive.
3. Does he avoid close intimacies with other people?
  - A. He does not feel that he does; he has many friends and acquaintances and enjoys talking with other people about most anything.
4. Is he self-centered?
  - A. Some people think he is because he appears aloof. He does not see himself as self-centered.
5. Does he accept suggestions rather than insist on working things out in his own way?
  - A. Typically he handles any problem that arises to his satisfaction, but is quite willing to consider suggestions.



6. Is he mean or unfair in his criticisms?  
A. He acts critical toward others but feels justified because he sets high standards for himself. Hence, he does not feel that he is unfair or mean.
7. Does he feel upset if he hears that people are criticizing or blaming him?  
A. Generally he does not feel upset but rather he thinks they do not really understand the situation.
8. Does he come home late?  
A. He returns home at 8 p.m. three nights a week because of work. The other days he is home by 5:30.
9. Does he feel nervous and anxious in the presence of superiors?  
A. Yes, he feels more comfortable with co-workers.
10. What reason does she give for wanting to leave him?  
A. She really offers no concrete reason but talks around the question and just says she can not stand to live with him.
11. What is her family background and how were her family relationships?  
A. She is the oldest of two children. She has a brother 2 years younger. She says her mother is just a peach and admits she did not get along well with her father. She always felt her father favored her brother and was jealous of him.
12. Is his wife domineering?  
A. She usually tells people what she wants and what to do.
13. What is her attitude toward sex?  
A. She feels it is her obligation to cooperate with her husband.
14. What does his wife do during the day?  
A. She belongs to a bridge club which meets weekly; she is active in church affairs, and does volunteer work regularly. The rest of her time is taken up with house work and entertaining friends.
15. Does she argue with people who tend to assert their authority over her?  
A. If she feels anyone is being authoritative or over-bearing she becomes very angry.
16. Does she live beyond his means?  
A. She likes fine things, but he is able to keep out of serious debt by working extra time on three evenings each week.

17. Does she feel dissatisfied if she remains unnoticed?
- A. She feels others are slighting her often and becomes assertive in the situation.
18. Is she sensitive to the deeper feelings of others?
- A. Generally she is quite unaware or unconcerned over how other people feel.
19. Have either of them been married before?
- A. No. She was engaged to be married before but the engagement was broken.
20. What is his wife's social, economic, and work background as compared to his?
- A. She comes from a wealthy high income family in which there was much social life. She has never held a job because all of her time was spent in college. He came from a family of moderate means who were simply friendly with all of the neighbors and relatives. He has been working since he was a junior in high school and he worked his way through college.
21. How long had they known one another before they were married, and how old were they when they were married?
- A. They met when they were at a college dance, and were married 6 months later. They were both 22.
22. Did they want to have children and are there any?
- A. They both felt they wanted children but not until they had a home of their own and he was well on the road in his career. They have two children, ages 5 and 4. The oldest is a boy, the youngest is a girl.
23. What are their ages?
- A. Both are 28.
24. Do either of them believe in birth control?
- A. He does but she does not believe in birth control.
25. Is there a difference of religion?
- A. Yes, she is Catholic; he is Protestant.
26. Does either of them go to bed early?
- A. They generally go to bed at the same time, but during an argument, she seems to want to retire early.
27. Are there any in-laws living in the home?
- A. His mother, who is a widow, lives with them for a short length of time each summer.

28. What does he argue with his wife about?
- A. He tries to impress upon her that they should be saving money, and that she should spend more time at home with the children.
29. What handles the money and pays the bills?
- A. They have a joint checking account. He generally sends the checks for the routine bills.
30. Is he affectionate with his wife?
- A. He feels he is generally. She says he does not love her or show his affection enough.
31. Do they have many mutual friends?
- A. She has many, many friends who she has met in the course of her weekly activities. He is acquainted with a few of them. None of the couples they knew when they were first married are living in the same area now.
32. Do either of them seem to enjoy arguing?
- A. He complains that they are always arguing. She says it is his fault, that if he did not like it to quit.
33. Does he expect a great deal from his wife?
- A. He does not think so. She feels he is trying to regulate her life too much.
34. Does he discuss any of his problems with his wife?
- A. He tells her his difficulties at work when they arise, but generally he feels little need to talk of any problems.
35. Is he interested in any of the things which she enjoys?
- A. They both enjoy playing cards, particularly bridge.
36. Does he share decisions with her?
- A. Strangely, he feels he is never faced with any decisions, that situations just kind of solve themselves.

# PROBLEM C

An individual belongs to a country club which is not particularly exclusive. He likes to belong to this club, and yet, each time he goes there, he finds himself in the middle of an argument which often leads to his exploding to the point of a fist-fight. He wants to get along with the other members and to make friends. He has heard that they are considering his expulsion from the club due to his behavior. He cannot understand what is happening which leads to all of the difficulty. Your task is to discover what is behind his complaint, and offer a tentative solution.

To do this, suppose you are a good friend of the person with the difficulty, and that he has come to you seeking your help with it.

In order for you to discover what is behind his complaint, you may gather information by asking any of the questions in any order you want. Ask only those questions which you feel will provide the necessary and sufficient information so that you may solve the problem. Answers for each question are to be found on the reverse side of the card.

BEFORE YOU BEGIN, READ OVER ALL OF THE AVAILABLE QUESTIONS.

- |  |   |
|--|---|
| 1. Is it necessary for him to belong to the club?                            | A. It is not absolutely necessary, but he feels it is a good place to make contact with people who are able to provide him with new accounts. |
| 2. What is it the person likes about the club?                               | A. It is a well equipped club and offers an opportunity to keep in good physical condition.   |
| 3. How long has he been a member of this club?                               | A. He has been a member for 9 months.   |
| 4. Is it an integrated club?   | A. Anyone may become a member if he pays the dues and has three people sponsor him.   |
| 5. Does he feel the club should be more careful in its selection of members? | A. He feels the club would be better if it was more selective.  |
| 6. Does he feel the club is to blame for his trouble?                        | A. He feels that if certain people were not members he would have no trouble.   |
| 7. What religion predominates at the club?                                   | A. There seems to be no predominant religion.   |

8. Are the members of the same socio-economic level?  
A. The membership may be classed as upper middle with several people slightly below this.
9. Has any one member been antagonistic toward him?  
A. He is convinced that one of the more outspoken members, who has many close friends at the club, would like to see him quit the club.
10. What kind of work do the members typically do?  
A. Many are young doctors and lawyers, but a majority are salesmen and skilled tradesmen, such as brick layers.
11. What are the central interests of the members?  
A. Many of the members are interested in the stock market and other business adventures.
12. What is the age range of the club membership?  
A. Ages range from 25 to 60 with the typical age about 35.
13. Do the members bore this person?  
A. He often feels bored with all of the talk and speculation about money matters.
14. Are any of the members business associates or competitors?  
A. Several of the members are competitors. He works with only two of the other members.
15. How does the person feel toward other members of the club?  
A. He often feels cruel and hostile toward them and is sure they do not know what they are talking about most of the time.
16. What is the persons feelings or attitude when he goes to the club?  
A. He feels he will just go out and get some exercise to work off some of the steam that has built up over the day.
17. Does he generally feel at ease with these people?  
A. When he first meets them he does, as time goes by and he sees them more, he begins to dread meeting them again.
18. Does he feel he is better educated or more intelligent than other members?  
A. He feels the school he went to is better than most, but he thinks others may be just as intelligent.
19. Does he drink much at the club?  
A. He spends much of his time in the bar and always has a drink in front of him. He thinks that he does not drink any more than the other members.

20. Does he always feel sure of his opinions; must he be "right" at all times?
- A. He is convinced that what he has to say is correct, if he is not sure, he says nothing.
21. Does he lose his temper very easily?
- A. He shows very little emotion, but then all at once it seems he is vehemently angry.
22. Does he have many friends outside of the club?
- A. Yes, he says he does. However, he talks very little about them.
23. Does he usually feel nervous or tense?
- A. He says he is definitely not a nervous person but he does feel tense quite often.
24. Does he argue as much away from the club as he does when he is there?
- A. He says that he always stands up for what he thinks is correct.
25. What are his interests?
- A. He enjoys sports and philosophical conversations.
26. How much education has he had?
- A. He has a college degree in business administration.
27. Why does he let his emotions get out of hand?
- A. He generally doesn't. Its only suddenly that he feels them and then he says he can not help himself.
28. Does he find it easy to talk with people?
- A. Yes, he enjoys very much other people.
29. Is he easily offended?
- A. He says that he probably is but that he would never let anyone know it.
30. Does he feel insecure or inadequate?
- A. No, only when he is about to act on an important decision does he wonder if it is really the correct thing for him to do.
31. Is he lonely?
- A. Very seldom is he aware of such a feeling.
32. Did he ever have real close friends?
- A. He has always been good in sports and has often felt close to the other people he played with.

33. Does he generally feel considerable doubt about his personal decisions although he behaves otherwise?
- A. It would seem that this may be correct.
34. Does drinking affect his judgment?
- A. He insists that he can hold his liquor as well as the next person.
35. Does his work produce strain on him?
- A. He always worries whether he is going to be successful and please his employer.
36. What religion is he?
- A. He was raised a Protestant, but he very seldom goes to church anymore.
37. Does he feel external causes block his promotion?\*
- A. He feels there are many external obstacles to his promotion and that if these were not there he would make more money.
38. Does he play a good game of golf?
- A. He scores in the 70's.
39. Does he talk about his dislikes for suburbia at the club?
- A. At times he does, but generally he indicates he really would like to own his own home.
40. Is he a good listener?
- A. He feels that he is.
41. Does he generally feel the only way to get along with others is to be submissive and acceptant?
- A. He feels that if this is the only way he can get along with others he prefers not to associate with them.
42. Does he often feel disappointed or depressed?
- A. Yes.
43. What does he enjoy doing most?
- A. He enjoys golf, the gym, and a good philosophical discussion.
44. Is he generally quite sympathetic toward others?
- A. Yes.
45. Does he feel that many of the things he does is out of a sense of obligation more than enjoyment?
- A. No, he generally does those things he enjoys.
46. Does he generally feel others are unable to understand him or his point of view?
- A. Yes.

47. Does he feel he must be persistent and show determination while at the club? A. He feels he should not let people walk over him.
48. Does he worry about his bill and feel embarrassment if others find out that he owes money? A. Very much so. He tries to conceal his debts.
49. Does he look at his experiences at the club as challenging rather than unpleasant? A. He feels very challenged and unpleasant during the arguments at the club. He would like it much better if such things did not occur.
50. When at the club does he prefer to conceal his real feelings and just take a position? A. Generally this is the case.
51. Does he feel that he has an excellent reason for feeling angry and that others provoke him needlessly? A. Not really, he thinks he must be doing something in these situations but he cannot understand what it is.
52. What do the arguments start over usually? A. Over the stock market or politics.
53. What kind of work does he do? A. He is a salesman at the wholesale level, dealing with large orders.
54. Is he satisfied with his job or does he complain about it? A. He is very happy with what he is doing, usually.
55. Does he get along at work with his coworkers? A. He says that he does, but at times he gets into arguments because he thinks others try to take his account away from him.
56. How far did his wife go to school? A. She has a high school education and 2 years of college.
57. Does his wife nag or is she a go-getter? A. No, She does feel they could save more money if they would try.
58. Does he argue with his wife? A. They often argue about money, She says he wastes too much money at the club and drinking.
59. Is his wife's social status different than other women at the club? A. Yes, she comes from a low income family whereas other wives are from middle to upper income families generally, typically they have a college degree.



60. What was his position in his family?
- A. He was the oldest of 3 children and felt he had considerable responsibility for his younger brother and sister.
61. How did he get along with his brother and sisters when he was young?
- A. He had only one brother 2 years younger and a sister 5 years younger. They always looked up to him and respected him. He always felt burdened with them.
62. How did he feel at home when he was young?
- A. He says he had a happy home life although the family never had a lot of money and he had to work to earn spending money.

## APPENDIX III

### Recording Forms

1. Therapist Personal Data
2. Social History for Patients
3. Subject Data Form
4. Therapist Post-Therapy Check List
5. Patient Post-Therapy Check List

## 1. Therapist Information Sheet

Name: \_\_\_\_\_ Clinic: \_\_\_\_\_ Date: \_\_\_\_\_

Circle Answers for each item

- 1) Sex: 1. Male 2. Female
- 2) Profession of Therapist: 1. Psychiatrist 4. Psychiatric Resident  
2. Psychologist 5. Psychology Trainee  
3. Social Worker 6. Social Worker Trainee
- 3) How many different individual and group psychotherapy cases have you seen in your experience (including training) as a therapist? Consider cases whose therapy lasted longer than three interviews:
1. 1 - 10 cases 4. 101 - 200 cases  
2. 11 - 25 cases 5. over 200 cases  
3. 26 - 100 cases
- 4) How many hours of personal psychotherapy or psychoanalysis (including didactic) have you had?
1. None 5. 201 - 300 hours  
2. 1 - 25 hours 6. 301 - 400 hours  
3. 26 - 100 hours 7 over 400 hours  
4. 101 - 200 hours
- 5) Is your own analysis or therapy ...  
1. completed  
2. in progress  
3. incomplete but not in progress  
4. no personal psychotherapy
- 6) Write the last two digits of the year you first conducted psychotherapy?
- \_\_\_\_\_

Circle the number which corresponds with the phrase which best describes your typical practice as psychotherapist with most outpatients.

1. = not at all 3. = fairly often  
2. = sometimes 4. = very often

## HOW OFTEN DURING THERAPY DO YOU...

- 7) Introduce topics which you think need discussion? 1. 2. 3. 4.

8) Express liking, concern, or other personal feelings for the patient?

1. 2. 3. 4.

HOW OFTEN DURING THERAPY DO YOU..

9) Set broad goals of therapy and try to influence therapy toward them?

1. 2. 3. 4.

10) Take a fairly passive role (compared with most therapists)?

1. 2. 3. 4.

11) Discuss, interpret, or help the patient analyze the meaning of a dream?

1. 2. 3. 4.

12) Point out connections between patient's behaviors and underlying attitudes or motives, between his past and present experiences?

1. 2. 3. 4.

13) Maintain an attitude of detachment toward patient? 1. 2. 3. 4.

14) Tell the pt. what you think or feel about the pt-therapist relationship?

1. 2. 3. 4.

15) Try to uncover the pt's unconscious motives? 1. 2. 3. 4.

16) Deliberately assume different therapeutic roles with different pts?

1. 2. 3. 4.

17) Tell pt your doubts if he is about to make an unwise decision?

1. 2. 3. 4.

18) Do a lot of talking?

1. 2. 3. 4.

19) Interpret or bring pt's attention to his nonverbal behavior during the interview?

1. 2. 3. 4.

20) Stop or interrupt a pt while he is talking in order to make comments?

1. 2. 3. 4.

21) Say what you feel is the "right thing" even if you have no rational, thought-out basis for saying it?

1. 2. 3. 4.

22) Ask probing questions of your pt?

1. 2. 3. 4.

In your opinion, how important are the following in obtaining "good psychotherapy results with most outpatients? (Check "not at all" for items you consider either unimportant or detrimental to good therapy).

Circle the number which corresponds with your opinion:

1. = not at all

3. = quite

2. = slightly

4. = very

## HOW IMPORTANT IS...

- 23) A close, warm, positive pt-therapist relationship? 1. 2. 3. 4.
- 24) Therapist knowledge of psychopathology and training in psychotherapeutic technique? 1. 2. 3. 4.
- 25) Affective, emotional, and nonverbal learning by the pt? 1. 2. 3. 4.

## HOW IMPORTANT IS...

- 26) A thorough case history and/or a proper diagnosis before beginning treatment? 1. 2. 3. 4.
- 27) Spontaneity on the part of the therapist? 1. 2. 3. 4.
- 28) Formulation of the dynamics of the pt-therapist relationship? 1. 2. 3. 4.
- 29) Understanding by the pt of the reasons he feels and acts as he does? 1. 2. 3. 4.
- 30) Mutual experiencing and expressing of feeling by pt and therapist? 1. 2. 3. 4.
- 31) An over-all plan or strategy of treatment by the therapist? 1. 2. 3. 4.
- 32) Interpretation or analysis of transference material? 1. 2. 3. 4.
- 33) The therapist's personality (compared with his training or professional skills)? 1. 2. 3. 4.
- 34) Interpretation of the pt's behavior in the sense of telling him its meaning or significance? 1. 2. 3. 4.
- 35) The therapist's ability to predict pt's reactions to his comments and to life situations? 1. 2. 3. 4.
- 36) Avoidance of emotional involvement with the pt? 1. 2. 3. 4.
- 37) Understanding by the pt of his unconscious motives and feelings? 1. 2. 3. 4.
- 38) Letting the pt make his own decisions without influence by the therapist? 1. 2. 3. 4.
- 39) Formulation of long range treatment goals by the therapist? 1. 2. 3. 4.

- 40) Understanding by the pt of his early childhood relationships?  
1. 2. 3. 4.
- 41) Successful adjustment of the pt to the social environment as a goal?  
1. 2. 3. 4.

(An altered form of LS Therapist Information Sheet; NPR Lab., DM & S  
Veterans Benefits Office, Washington, D.C.)

## 2. Patient Social History

## and Study Record

Patient's name: \_\_\_\_\_ Therapist's name: \_\_\_\_\_

Clinic: \_\_\_\_\_

Final Outcome: Completed study \_\_\_\_\_  
(Date)

Dropped \_\_\_\_\_ Number of sessions \_\_\_\_\_

First Testing: \_\_\_\_\_ Second Testing Scheduled for: \_\_\_\_\_

Second Testing: \_\_\_\_\_

1. Year of birth: \_\_\_\_\_ 2. Race: \_\_\_\_\_ 2A. Sex: M F
3. Marital Status: \_\_\_\_\_ 4. Highest Level of schooling completed: \_\_\_\_\_
5. Has the patient been in a hospital for a psychiatric problem: (Date of discharge) \_\_\_\_\_
6. Has the patient had a previous course of psychotherapy: (Date of termination) (a) \_\_\_\_\_ (b) duration: \_\_\_\_\_
7. Present employment status: \_\_\_\_\_
8. Principal occupation (judged on the basis of years of experience on the job and amount and type of specialized training for this occupation).  
\_\_\_\_\_  
\_\_\_\_\_
9. Was the patient ever treated with tranquilizers: \_\_\_\_\_
10. Presenting complaint: \_\_\_\_\_
11. Diagnosis: \_\_\_\_\_
12. Estimated Intelligence: \_\_\_\_\_
13. Religion: \_\_\_\_\_
14. Locale of Residence: \_\_\_\_\_

## 3. Subject Information Sheet

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Age: \_\_\_\_\_ Sex: \_\_\_\_\_ Race: \_\_\_\_\_

4. Highest level of schooling completed: \_\_\_\_\_

4. Occupation: \_\_\_\_\_ 5A: Occupation of your father: \_\_\_\_\_

6. Religion: \_\_\_\_\_

7. Locale of Residence: (Urban or rural) (a) Now: \_\_\_\_\_

(b) During your teens: \_\_\_\_\_

8. Estimated Intelligence: \_\_\_\_\_

Date Tested: \_\_\_\_\_

Date scheduled for second testing: \_\_\_\_\_





## Therapist Post Therapy Check List

I. How much awareness does the patient reveal with respect to those (motives, frustrations, conflicts, etc.) contributing to his difficulty?

- \_\_\_ 1. The patient states the problem in more than symptomatic terms.
- \_\_\_ 2. The patient states the problem in terms of deeper needs and conflicts.
- \_\_\_ B. The patient sees the problem as manifested in more than one area of his behavior.
- \_\_\_ 1. The patient suspects the problem is related to his past experiences.
- \_\_\_ 2. The patient clearly relates the problem to his past experience.
- \_\_\_ B. The patient perceives the problem as a function of his own behavior.

II. How much feeling does the patient demonstrate with respect to his awareness of his problem?

- \_\_\_ 1. The patient appears less tense in the interview situation following the discussion of his problem.
- \_\_\_ 2. The patient states that he has experienced positive emotional changes as a result of discussing his problem in therapy.
- \_\_\_ B. The patient accepts the therapist's deeper clarifications of feeling concerning his problem.

III. Has the patient made any plans?

- \_\_\_ 1. The patient expresses a desire to change.
- \_\_\_ 2. The patient accepts responsibility for making his own plans.
- \_\_\_ 3. He states that he is planning to experiment with new ways of handling his problems.
- \_\_\_ 4. The patient makes plans in therapy.
- \_\_\_ 5. The patient has made a definite choice on the way he will handle his problems.
- \_\_\_ B. The patient's plans are realistic and within the scope of his abilities.

IV. Has the patient carried out any such plans?

- \_\_\_ 1. The patient has carried out a new plan.
- \_\_\_ 2. The patient indicates that he has carried out a new plan and found it rewarding.

- ☐ 3. The patient has maintained rewarding patterns of behavior.
- ☐ B. Observers report that the patient manifest new behavior.
- V. Has the patient shown a decrease in symptoms?
- ☐ 1. The patient appears less tense in the interview situation.
- ☐ 2. The patient reports that he is less tense.
- ☐ 1. The patient has experienced some relief from his symptoms.
- ☐ 2. The patient indicates that his symptoms still exist but do not bother him as much.
- ☐ 3. The patient indicates that his symptoms no longer exist.
- ☐ B. The patient reports that friends have noticed an improvement in his behavior.
- VI. To what extent is the patient accepting of himself?
- ☐ B. The patient expresses fewer negative self-attitudes.
- ☐ B. The patient expresses more positive self-attitudes.
- ☐ B. The patient can make non-intrapunitive self-critical statements without being defensive.
- ☐ B. The patient's attitudes toward others are more positive.
- I. What degree of severity does this case exhibit?
- A. Incapacity (resulting from discomfort or inefficiency)
  - ☐ 1. Minimal (he functions adequately in all situations)
  - ☐ 2. Mild
  - ☐ 3. Moderate
  - ☐ 4. Severe (he functions inadequately in most situations)
- B. Duration of the Problem?
  - ☐ 1. Chronic (from 12 years of age or before)
  - ☐ 2. Chronic (13 to 17 years)
  - ☐ 3. Chronic (18 to recent)
  - ☐ 4. Acute (immediately preceding therapy)
- C. Stress (Environmental Pressures)
  - ☐ 1. Minimal (almost no environmental factors)
  - ☐ 2. Mild
  - ☐ 3. Moderate
  - ☐ 4. Severe (many environmental factors contribute)

II. To what extent was this case a success?

- ☐ 1. Unsuccessful (same or worse)
- ☐ 2. Slightly successful (slight improvement - some relief)
- ☐ 3. Moderately successful (shown improvement)
- ☐ 4. Successful (patient handles problems as well as average person or better)

III. How did you feel about the treatment interviews with this patient?

- ☐ 1. It was an unpleasant situation for me.
- ☐ 2. I neither dreaded nor enjoyed it.
- ☐ 3. I enjoyed the treatment interview.

1. Does therapy, for this patient, focus chiefly on his problem, or does it focus chiefly on his relationship with you? (This scale separates relationship from problems, regardless of the qualities of either.)

1	2	3	4	5	6	7	8	9
Focus on his problems					Focus on relationship with you			

2. To what extent does the patient talk about your general characteristics such as age, sex, looks, beliefs, background, school of therapy, et cetera?  
 e.g. "You're young so I doubt if you'll understand me."  
 "You're non-directive so of course you won't answer me."

1	2	3	4	5	6	7	8	9
Often								Rarely

3. To what extent does the patient find that his relationship with you is an important instance of the difficulties he has generally?  
 e.g. "I feel guilty when I want to be dependent.  
 And I feel that way with you also."  
 "I'm uncomfortable about your opinion of me. Come to think of it,  
 I'm always worried about what others think of me."

1	2	3	4	5	6	7	8	9
Not at all								Very significantly

4. How important to the patient is the relationship as a source of new experience? Example: "I've never been able to let go and just feel dependent and helpless, as I do now."  
 "This is the first time I've ever really gotten angry at someone."

1	2	3	4	5	6	7	8	9
Not at all								Very significantly

5. To what extent do the problems focus in the past? (Childhood or earlier years).

1	2	3	4	5	6	7	8	9
Talk <u>about</u> feeling past or present							<u>Express</u> feelings of the moment	

6. To what extent does the patient express his feelings, and to what extent does he rather talk about them? (This scale differentiates direct expression from report about one's feelings, regardless of whether the feeling is past or present.) Example:

"I have this feeling of hate and it's  
for you."

"I was scared last night."

"Often I feel depressed."

(No indication of present feeling in  
either words or voice.)

"I hate you."

"It comes to me now how  
scared I really was last  
night."

"Gee, I feel low."

1	2	3	4	5	6	7	8	9
Talk About Feelings							Express Feelings	

I. The topic most frequently discussed was:

II. The area of conflict for this person is:

(The last 6 scales are taken from E. T. Gendlin, et. al., "Counselor Ratings of Process and outcome in Client-Centered Therapy." J. Clinical Psychol., XVI, 210-213, 1960. Slight modifications were made by the investigator.)

## 5. P-T Rating Scale

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**INSTRUCTIONS:** You are asked to answer the following statements concerning your experiences at the Clinic, so that we may be able to improve our services and be of more help to individuals in the future.

Please be as objective and straight-forward as possible in rating yourself, and the results of your experience since coming to the Clinic. This information is considered confidential, and your answers will be protected from unauthorized persons.

Check the place along the graph that most clearly indicates the way you feel now in relation to how you felt when you began this course of psychotherapy.

## 1. When I think about myself:

I am  
content  
with what  
I find

I have few  
misgivings

I am some-  
what con-  
cerned with  
my short-  
comings

I am always  
faced with  
my weaknesses  
and inade-  
quacies

I am  
ashamed

## 2. In regard to interests

I am quite  
worried  
about my  
interests

I feel some  
concern  
over my  
interests

I am not  
worried  
about my  
interests

I enjoy a  
few inter-  
ests

I derive  
much enjoy-  
ment from  
my interests

## 3. My attitude toward problems which may occur in the future

I feel very  
adequate in  
my ability  
to handle  
problems

I feel  
fairly ade-  
quate in my  
ability to  
handle  
problems

I feel that  
I will be  
able to  
work out my  
problems  
some way

I have some  
misgivings  
about facing  
future  
problems

I have no  
confidence  
in my  
ability to  
handle  
problems  
which might  
come up

## 4. My relationship with my immediate family

I am thoroughly satisfied with the relationship	I am not entirely satisfied with my adjustment toward some of my relatives	I am somewhat less satisfied than the average person is	I am concerned over my relationships	I am very unhappy about my relationships
---	--	---	--------------------------------------	--

## 5. The problem(s) which brought me to the Clinic

Is worse	Bothers me as much as ever	Still bothers me some	Exists but does not bother me now	No longer exists
----------	----------------------------	-----------------------	-----------------------------------	------------------

## 6. Would you like to continue psychotherapy?

I feel a definite need for more therapy	I feel that I need therapy - but not as much as before	I am uncertain whether I should stop therapy	I feel that I need no more therapy but would like to come back if the need arose	I feel I need no more therapy
---	--	--	--	-------------------------------

## 7. In my attitude toward others' shortcomings

I can accept people for what they are regardless of their shortcomings	I usually accept people for what they are	I am sometimes annoyed by their shortcomings	I am annoyed by their shortcomings	I can't stand their shortcomings and faults
--	---	--	------------------------------------	---

## 8. Do you think the therapist was important in working through your problem?

My therapist was of no value	My therapist was of very little value	My therapist was of some value	My therapist was quite valuable	My therapist was of great value
------------------------------	---------------------------------------	--------------------------------	---------------------------------	---------------------------------

9. Considering my ability to concentrate, I feel that:

I am disturbed because of difficulties in concentrating	I am a little concerned over problems in concentrating	Most of the time problems in concentration don't bother me	I am satisfied with my ability to concentrate	I am pleased with my ability to concentrate
---	--	--	---	---

10. With regard to my present sexual adjustment

I am very distressed about my sex life	I am somewhat dissatisfied with my sex life	My sex life affords me some satisfaction	I am fairly satisfied with my sex life	I am very satisfied with my sex life
--	---	--	--	--------------------------------------

11. My contacts with other people

Are completely satisfactory	Are rather satisfactory	Might leave something to be desired	Are unsatisfactory	Are very unsatisfactory
-----------------------------	-------------------------	-------------------------------------	--------------------	-------------------------

12. If I were to judge my change since coming to the clinic, I would say that

I've gotten much worse	I've gotten worse	I haven't changed	There has been a slight improvement	There has been more than slight improvement
------------------------	-------------------	-------------------	-------------------------------------	---

13. In considering my problems, I feel that

I've handled my problems successfully	I am taking steps to handle my difficulties	There seem to be ways I can handle them	There seems to be little I can do	I can't do anything about them
---------------------------------------	---	---	-----------------------------------	--------------------------------

14. When faced with decisions, I feel that:

I am very satisfied with my ability to make decisions	I am satisfied with my ability to make decisions	I am not bothered much about making decisions	I become concerned over the making of decisions	I become very distressed over the making of decisions
---	--	---	---	---



## APPENDIX IV

## Issues Encountered and Their Solution

The purpose of this appendix is to indicate the major problems which were encountered and to present arguments considered in arriving at a decision concerning these issues. Problems taken up are: (A) The length of the study, (B) The criterion group--is it a control group, (C) the therapist definition, (D) The patient definition, (E) The number of patients per therapist, (F) The pre- and post-treatment testing. In part, this appendix is a critique of the study.

(A) The length of the experiment. Many people may question whether a 6 month experimental period is sufficiently long to expect any changes to occur as a result of psychotherapy. For example, Lorr et al. (1962) studied frequency of therapeutic contacts and duration of treatment in relation to measured changes over periods of 4, 8, and 12 months. At 4 months the patient criteria indicated no significant changes although the therapists did record favorable changes. But, at the 8 month interval, both therapist and patients reported significant changes. One may assume that if certain changes (those measured by Lorr) are to become manifest this occurs between the 4 and 8 month period. Many studies have used a 6 month experimental period and have found changes, for example, Zolik and Hollen, 1960; Braaten, 1961; Gendlin and Shlien, 1961; Curran, 1945; Cartwright and Vogel, 1960; Parloff, 1961; and Barron, 1953. Six months may thus be judged to be sufficient time for significant changes to occur.

The issue cannot be resolved quite so readily, however, Rimoldi (1955; 1961) suggests that the method employed by him and his associates, which is used in this investigation, reflects the mental processes associated with

problem solving. On the other hand, psychoanalytic theory (Fenichel, 1945; Hartmann, 1958), along with most theorists who consider personality in topological terms (Messick, 1961) place the thought processes among the structural components. It is implied that the structure of personality may not be affected except by long term re-constructive treatment (Wolberg, 1954). How then can one really anticipate obtaining measured changes of thought processes in a 6 month period?

Those who take a process view of psychotherapy report definite changes in the manner of perception (e.g., Curran, 1945; Snygg and Coombs, 1949) in periods of 6 months or less. Rogers feels that these changes may be seen as changes in the process of thinking or reasoning (1951, p. 142). This position may be defended on the basis of laboratory experiments which demonstrate anxiety, threat to self, or stress effect intellectual processes (Beier, 1951; Ainsworth, 1958; Kempler, 1962).

In their process formulation of psychotherapy, Whitaker and Malone see the establishment of a special mode of communication the first essential stage in any successful therapy (1953, p. 89). Although Whitaker and Malone's "roots of psychotherapy" are essentially nonverbal affective communications, their formulation does not entirely exclude verbal, ideational communication (1953, p. 128). Employing their theoretical framework, one would expect greater changes in the dimension under study to occur in the early phases of psychotherapy than later when channels of communication are well established. Hence, it is in the early stages of psychotherapy that one should expect alteration in the approach to problems. Once these changes have occurred, the therapist and patient can get on to the core stages of treatment, according to Whitaker and Malone's formulation. Their theory would lead to the assumption

that changes in problem solving process will occur during the first 6 or 7 months of treatment.

Frank made a comparative study of psychotherapy and suggested that if a patient is going to improve, this occurs in the majority of cases "immediately after treatment (is initiated), regardless of the type of psychotherapy they have received" (1961, p. 13). It is Frank's contention that the duration of treatment may be more closely related to the therapist's idea of how long treatment should take rather than the patient's condition. Hence, if Frank's ideas are anywhere near correct, it seems reasonable to arbitrarily establish a 6 month experimental period, provided this period is in the initial phases of psychotherapy. However, the criteria for improvement may not in any way reflect thought processes as measured via problem solving behavior.

This short discussion brings out many of the issues involved in psychotherapy today, and further suggests some of the implications of this study for personality theory, theories of psychotherapy, and cognitive processes.

(B.) Criterion Group--may it serve as an experimental control group?

To find an acceptable control against which to compare the experimental subjects has been a thorny problem faced by everyone who attempts to conduct research in psychotherapy. Experimenters have dealt with the problem in various ways, few of which are completely satisfactory. Nichols and Beck have the following to say about the problem:

One of the most difficult problems in the evaluation of the results of psychotherapy has been the securing of adequate untreated control cases. Many investigators have omitted controls entirely. Some, such as Barron and Leary (1955), have used waiting list cases, and others, such as Rogers and Dymond (1954), have used a normal group of non-clinic subjects.

Although these two studies represent the most adequate controls available for changes in self-ratings with therapy, some objections can be raised to both. Barron and Leary have pointed out that there may be considerable therapeutic effect in an initial intake interview and in being on a clinic

list. They also suggest that self-rating tests may be affected by the relationship to the clinic and therapist, and these relationships are quite different for clinic and waiting list controls at the time of the posttest. The nonclinic control group used by Rogers and Dymond has the disadvantage of not being comparable to the therapy group in terms of maladjustment. On both of their self-rating measures, the self-ideal correlation and the Q sort adjustment score, the nonclinic control group achieved higher mean scores on the pretest than any mean score ever achieved by the therapy group. Thus, if the tests have any ceiling effect, the control group will be more affected than the therapy group. (1960, p. 394).

The present discussion aims to point out the factors which ideally should be controlled, and then, in the light of practical considerations, to indicate to what extent this ideal can be met. Confounding variances will be discussed in terms of the limitations they place on any results obtained.

The purpose of any control group of course is to exclude alternative hypotheses or to rule out confounding, extraneous variables. In the classical design of experiments, controls are dealt with at the level of sampling. When this design is carried out, it is desirable to control for the main effects of history, maturation, testing, instrument decay, regression, selection, and mortality although these sources of variance are not usually made explicit (Campbell, 1957).

By the main effect of history is meant the many specific events which have occurred during the time span between the first and second testing, in addition to the treatment, and which may equally account for the obtained results.

The confounding variable designated maturation covers those effects which are systematic with the passage of time, i.e., growing older. "In the form of 'spontaneous remission' and the general processes of healing it becomes an important variable to control in medical research, psychotherapy, and social remediation." (Campbell, 1957, p. 298).

The third source of confounding variance is the effect of testing itself. Often, persons taking a test for the second time make scores systematically different from people taking it the first time. This is generally the case whenever the measurement process is not a part of the normal environment.

Instrument decay provides an uncontrolled source of variance that might be mistaken for the effect of treatment. This term designates differences resulting when people are used as part of the measuring apparatus, i.e., as judges, observers, raters. Pre- and post-changes may simply reflect that the rater has become more experienced, more fatigued, unwittingly shifts his cues, or the like.

Another possible extraneous factor is statistical regression. By this is meant the shifts toward the mean which are due to random imperfections of the measuring instrument or random instability within the population. Such statistical regression probably occurs most often when the group under investigation has been selected for its extremity on the measuring instrument. We will have more to say regarding statistical regression shortly.

A fifth source of confounding variance is selection. Selection or recruitment of the persons making up the groups may be biased so that they differed anyway without the effect of treatment. Likewise, mortality can change previously equivalent groups because a biased subset of members may have dropped out so that the effect of treatment is again confounded.

Whenever the experiment is faulty in any of these seven categories, Campbell considers it a compromise or approximation design, and not a true experimental design (1957, p. 301). In general, the simple or main effects of these variables jeopardize the internal validity of the experiment and are

adequately controlled by standard experimental designs.

A second way of dealing with the problem of controls is at the level of data analysis. (Robbins and Wallerstein, 1959; Cronbach, 1957). When this method is employed there is a deliberate omission of nontreated controls or of normal controls in the usual sense. The researcher may employ such a method when he feels that the simple differential criteria (age, sex, economic status, marital status, formal diagnosis) do not distinguish individuals from one another along dimensions crucial to their psychotherapeutic course and outcome. The experimenter may then bypass these criteria and by selection concentrate his attention on the assessments in depth of the 3 groups of variables-- patient, treatment, and situational (Edwards and Cronbach, 1952; Watson, 1952) which he does deem relevant to the course and outcome of treatment. The assessment of these variables may then be employed to match or divide patients for similarity and contrast. As Robbins and Wallerstein point out, it is not desirable to use these differential criteria to set up nontreatment controls "since that would mean withholding treatment that is felt to be clinically indicated (at least temporarily) and would therefore violate our decision to study naturally occurring treatment processes in regular clinical practice, without any research alteration of treatment planning or execution. Nor do we set up a so-called normal control group. Often this means simply 'not in a hospital' or 'not in treatment' which is not a dimension particularly relevant to an understanding of either personality functioning or the nature of illness (1959, p. 39).

An example of experimentation in which controls are instituted at the data level is the psychotherapy research project of the Menninger Foundation. This research has as its purpose the study of the process and course of psychotherapy with the aim of increasing the understanding of how psychotherapy

contributes to changes in patients suffering from mental illness (Robbins and Wallerstein, 1956). Another example of research in which this method was essentially used is the study by Nichols and Beck (1960). They matched a normal control group with their patient group, not in terms of data such as age, sex, socio-economic status, et cetera, but in relation to scores obtained on their instruments.

Two considerations which determine the level at which control is instituted are (a) the level of maturity of the field (Campbell, 1961, p. 35), and (b) the orientation of the experimenter, i.e., experimental vs. naturalistic.

Earlier it was suggested the purpose of controls is to exclude alternative hypotheses. However, "the level of certainty at which the truth or falsity of an hypothesis can be established is a function of the accuracy with which the relevant variables can be identified, measured, and manipulated" (Frank, 1959, p. 10). Hence, it can be seen that the degree of possible and desirable control in a particular field of study depends on its state of development. In the very early stages of investigation of an area of concern, important insights may be achieved without the use of any controls (e.g., Wertheimer, 1959; Duncker, 1945, Piaget, 1952).

Campbell (1961) brings out the same idea in his discussion of external validity or generalizability. In his view, one could have a perfectly well designed, internally valid study, controlling such things as age and socio-economic status, and yet not be able to generalize the findings to the population he is concerned with. This is due, according to Campbell, to the fact that the elements controlled by the experimenter had no real relevance to the conditions being studied (1961, p. 33-36).

The researcher may be oriented to manipulate variables (experimental

method; Underwood, 1957) or he may wish to look at events as they are (naturalistic approach) and describe his findings (Good and Scates, 1954). Each orientation implies a particular procedure. The researcher who is oriented to the "experimental method" tends to employ designs which control each element as outlined above. To insure such control he may use any number of control groups--4 not being terribly uncommon (Campbell, 1961). Implicit in the commitment to a naturalistic approach, on the other hand, is the absence from the research design the kinds of manipulations inherent in setting up control groups. This approach does not abrogate in any way the experimenters responsibility to tackle the problem of controls. Rather, it forces the investigator to re-consider what should be controlled and how to control it, by what specific control methods (Robbins and Wallerstein, 1959). These controls usually become manifest more in terms of appropriate selection of important material rather than on manipulation (Cronbach, 1957).

The error variance due to statistical regression is not easy to evaluate, but it may be present in either type of research, experimental or naturalistic. It appears worth our efforts to expand on this idea.

The problem of statistical regression is often a source of error which leads to false interpretations of data (e.g., Harris and Thompson, 1947). In this discussion of the problem we will quote extensively from Campbell (1961). Campbell states that

While regression has been discussed here in terms of errors of measurement, it is more generally a function of the degree of correlation, with greater regression the lower the correlation. The lack of perfect correlation may be due to "error" and/or to systematic sources of variance specific to one or the other measure.

Regression effects are thus inevitable accompaniments of imperfect test--retest correlation for groups selected for their extremity. They are not, however, concomitants of extreme scores wherever encountered. If a group selected for independent reasons turns out to have a low mean, there is no a priori expectation that the group mean will be less extreme



on a second testing. For such a group, the obtained mean is the best estimate of its "true" mean. But for a group selected because of its extremity on a fallible variable, this is not the case. It will regress toward the mean of the population from which selected. (p. 22-23).

In discussing quasi-experimental designs in which the experimental and the control groups do not come from exactly the same population, Campbell says, "In general, if either of the comparison groups has been selected for its extreme scores on  $O^{37}$  or correlated measures, then a difference in degree of shift from pretest to posttest between the two groups may well be a product of regression rather than the effect of  $X^{37}$  (p. 110). In his discussion specifically related to psychotherapy, Campbell suggests patients are self-selected insofar as they are seeking treatment. Under such circumstances, Campbell says such

respondents clearly are self-selected, the experimental group having deliberately sought out exposure to  $X$ , with no control group available from this same population of seekers. In this latter case, the assumption of uniform regression between experimental and control groups become less likely, and selection-maturation interaction (and the other selection interaction) become more probable. The "self-selected" Design 10<sup>38</sup> is thus much weaker. None the less, it provides information which in many instances would rule out the hypothesis that  $X$  has an effect. The control group, even if widely divergent in recruitment and mean level, assists in the interpretation. (1961, p. 113).

In the present experiment subjects were not selected because, of extreme scores. Rather they were selected for independent reasons, i.e., because they were patients. On the surface, the regression variance appears to be no problem. However, implicit in the study is the assumption that patients have learned to approach problems differently than others from the same population. Thus, a positive correlation is implied between emotional illness and problem

---

<sup>37</sup> $O$  = a process of observation or measurement

$X$  = exposure of a group to an experimental variable or event, the effects of which are to be measured.

<sup>38</sup>Design 10 is Campbell's designation of a nonequivalent control group design.

solving process. Though it remains somewhat unclear, Campbell implies that regression effects may be expected to be larger on the patient sample than the normal sample. To what extent this will be true in this experiment remains unknown.

We may now turn to a consideration of the experimental design employed in this study, and with the foregoing discussion directing our focus, consider its limitations. It is "just because full experimental control is lacking, (that)\* it becomes imperative that the researcher be thoroughly aware of what specific variables his particular design fails to control" (Campbell, 1961, p. 74). In this experiment, several ideas are being evaluated at the same time so that the required design may be seen as being compound. That is, each hypothesis of the experiment requires the data to be organized in different ways. The first hypothesis, for example, requires a strict experimental approach to evaluate it in a straight-forward manner. In relation to this hypothesis, however, the study has a compromise or quasi-experimental design. A true experimental design for the testing of the first hypothesis would require twice the number of patients to be divided into treatment and non-treatment groups. This was not possible or desirable in this study because: (a) the number of therapists just beginning with a patient is very small. Typically therapists build a case load and take on new patients only at those times when old cases terminate. Hence to obtain two patients (one for each group) at the same time from one therapist is nearly an impossibility. Just to increase the number of patients to form a control group would require the study to be extended over an additional year or possibly two. (b) the study cannot be viewed as a "critical," crucial, or validation study, but must rather be seen as being essentially exploratory in nature. Hence, many clinic

administrators, and notably the Veterans Administration where most of the patients were obtained, would not permit withholding treatment. Also, despite the arguments advanced by Eysenck (1961), the researcher does not feel justified in an early exploratory study to withhold treatment which is at least temporarily felt necessary. (c) nor was it desirable to have a control group randomly obtained in the usual way, which would have required the screening of hundreds of newly accepted patients (a hopeless impossibility, Frank, 1959, p. 13), because as yet we have little evidence of what should be controlled.

The reader may well ask, "why bother testing the criterion group a second time, the results of the first testing can serve as criterion scoring weights." Perhaps, but certain benefits can accrue from the second testing of the criterion group. It can serve as a partial control for many of the confounding variables discussed above. Campbell states,

In particular it should be recognized that the addition of even an unmatched or nonequivalent control group reduces greatly the equivocality of interpretation over what is obtained in Design 2, the one-group pretest-posttest design. The more similar the experimental and the control groups are in their recruitment, and the more this similarity is confirmed by the scores on the pretest, the more effective this control becomes. Assuming that these designs are approximated for purposes of internal validity the design can be regarded as controlling the main effects of history, maturation, testing, and instrumentation, in that the difference for the experimental group between pretest and posttest (if greater than that for the control group) cannot be explained by main effects of these variables such as would be found affecting both the experimental and the control group. (1961, p. 108).

In regard to the first hypothesis, certain sources of error must be considered in the results. It appears that error variance due to testing and instrument decay are completely controlled. By testing the criterion subjects the second time at an interval essentially equivalent to the experimental period, further elements of "error variance" are partially controlled. Variance from history and maturation which is not peculiar to mental illness are in

this way eliminated. Insofar as important factors of history, such as getting married without adequate preparation, leaving one's marital partner, or various inter-family occurrences, are perhaps more prevalent and difficult emotionally for emotionally ill persons, it is not likely that a community sample can serve as an adequate, complete control of this variance. In a similar manner, "spontaneous remission" is peculiar to the patient population and hence this aspect of maturation is not adequately controlled by a community sample. Hence, testing the criterion subjects before and after the experimental period can at best be considered as partial control of these two sources of confounding variance.

The extent to which regression is controlled is dependent upon the degree of correlation between patient-community subjects and problem solving. If there is a continuum through these samples with a lower correlation obtained with patients, regression effects may well be significant.

Again, selection may be partially controlled. Both the community sample (criterion) and the patients were seekers--one group was seeking improvement via didactic methods (course work), and the other via psychotherapy. How comparable these two "seeker groups" are on the variable under study may be questioned, but it is suggested that differences are held to a minimum. Similarly, there is mortality in both groups: the community population had no more commitment to take the second testing than did the patients. If they dropped the didactic course, and approximately 46% did, they were dropped from the second testing. The patients in a similar manner were not tested a second time if they dropped treatment. It is estimated that approximately 38% of the patients will be drop outs. It appears then that mortality may be comparable and hence controlled. Selection variance may be only partially

controlled, but it is suggested that this source of error is to a large extent accounted for by the control group.

From this discussion, it appears that much of the error variance is controlled by the criterion group testing. However, caution is required in the interpretation of the results because of those factors which are only partly controlled.

The second hypothesis as well as the third requires that the patients be divided into two sub-groups: judged changed and not changed. It is assumed that because these subjects come from the same population they will be equivalent.

(C) Therapist Definition. The history of research in psychotherapy is marked by concern about whether one theoretical orientation is really any different than another. Early study clearly suggested real differences, at least on a conceptual level, existing between person's who adhere to different schools of therapy (Gump, 1944; Porter, 1943). Although this may be true, recent investigators (Fiedler, 1951; Strupp, 1955) have concluded that experience is a much more discriminating factor than orientation, and that very likely with more experience, therapists with entirely different theoretical commitments behave very similarly. The suggestion is that experience cuts across or modifies the significance of orientation. More recent investigation (Fey, 1958) again raises the question about experience, suggesting it may not be either experience or orientation which is the deciding factor in the psychotherapeutic relationship, but rather it is the therapists basic personality or adequacy (Truax, 1962, Herr, 1959). It was the researchers conviction that the therapist as a person was perhaps the most important dimension which led to the present definition of a psychotherapist. This writer was convinced that

some measure of the therapist was essential before more insightful research could be conducted in the area of psychotherapy.

(D) Patient Definition. It has been suggested that unless the researcher limit the type of person, diagnostically speaking, to one category or another, no meaningful result would be obtained. The assumption underlying this argument is that people of different nosological categories have been shown to handle abstract material differently (Wechsler, 1958). However, the review of literature in this report indicated one cannot judge capacity for solving real-life problems from ability to solve abstract problems (Bruner, et al., 1956). In fact, other research (Kirtner, 1959; Roth, 1960) suggest problem solving approach may be expected to cut across diagnostic lines, and perhaps one's style of coping with real-life problems would be a more meaningful nosology for prognostic purposes than the conventional categories (Eysenck, 1961; Lorr, 1961). Hence the decision was reached to include patients regardless of diagnosis, who appeared to the intake staffs of the respective clinics to have potential for alteration of behavior as a result of the therapies they provided.

(E) Many patients per therapist, or many diads of therapists with patient. A consideration in the design of this study was whether few therapists with several patients should be included or whether one patient with each of several therapists should be obtained. The issues underlying this seemingly arbitrary decision are important in regard to the interpretation of the results (for a discussion of the idiographic-nomothetic problem, see Phillips, 1956).

If several patients per therapist were included, positive findings of change would appear more conclusive. That is, if all patients in therapy with

one therapist became very similar to the therapist, it would suggest that at least with this therapist, such a phenomenon occurs. However, caution would be necessary in generalizing to therapists in general.

On the other hand, if the design called for several therapists, each with one patient, positive findings would imply that the findings were more general. The research would not be intensive however, since there would be no evidence that such results occurred with all patients of the same therapist, successful or unsuccessful, or the like.

The problem was resolved on a practical basis. Desirable as it may appear, to obtain a large number of patients newly accepted for treatment by an experienced psychotherapist within a reasonable length of time is impossible. Typically the psychotherapist has a full case load if he has experience working at a clinic for any length of time. Hence, he accepts new patients only as patients leave treatment, either due to modified behavior, drop out, or untreatability. Once treatment is adequately initiated, the course can be expected to last at least 6 months or 1 year, and often a period of years. Thus, unless a research study has a very long intake period and consequently a very long over-all time, it is impractical to wait for a large number of patients from any one therapist. This observation forced the present study to be designed along a more nomothetic line with the option of having more than one patient per therapist if this were possible during a two month intake period. As the intake actually worked out, the number of patients per therapist ranged from 1 to 9 with the mode being 1 followed closely by 3 patients per therapist. The psychotherapist with 9 patients just began working at one of the clinics and most of her cases were eligible for the study.

(F) Same problems used in pre- and post- treatment appraisal. It

would appear that a valid criticism of the present study is to point to testing variance. Perhaps when a subject takes a problem the second time his performance is not only influenced by the independent variable, but also by (1) learning from his first experience with the problems, or (2) memory of some of the data obtained by the earlier performance.

This is a real problem which is typically solved by the development of parallel forms of the test. Another solution to the problem however, is to use the same test in a test-retest situation where nothing has occurred between testings which would influence the performance on the second testing. Any differences are then attributed to the testing variance. The development of parallel tests is a prodigious amount of work, usually taking years of detailed work. Hence, the later method was selected.

All three problems were administered a second time to a substantial number of the criterion subjects, in a random fashion. Hence, although the primary purpose of testing the community sample was to develop norms for scoring, the second testing of these people could serve as a control for testing, i.e., learning and memory. Any differences in the two performances could be considered error.



## BIBLIOGRAPHY

- Adorna, T. W., Frenkel-Brunswik, E., Levinson, D. J. The Authoritarian Personality, New York: Harpers, 1950.
- Ainsworth, Leonard H. "Rigidity, insecurity, and stress," J. Abn. and Soc. Psychol., 1958, 56, 67-74.
- Alexander, Franz. Fundamentals of Psychoanalysis, New York: Norton, 1948.
- Alexander, F., French, T. M., et al., Psychoanalytic therapy, New York: Ronald, 1946.
- Allport, Gordon W. Pattern and growth in personality, New York: Holt, Rinehart, 1961.
- Bales, Robert F., & Strodtbeck, Fred L. "Phases in group problem solving," J. abn. & Soc. Psychol., 1951, 46, 485-95.
- Balint, M. "Ego-strength and education of the ego," Psychoanalytic Quart., 1942, 11, 87-95.
- Bandura, A. "Psychotherapy as a learning process," Psychol. Bull., 1961, 58, 143-59.
- Bandura, Albert, & Huston, A. C. "Identification as a process of incidental learning," J. Abn. and Soc. Psychol., 1961, 63, 311-18.
- Bandura, A., Lipsher, D. H., & Miller, P. E. "Psychotherapists' approach-avoidance reactions to patients' expressions of hostility," J. Consult. Psychol., 1960, 24, 1-8.
- Bandura, A., & Walters, R. H. Adolescent aggression, New York: Ronald, 1959.
- Barron, Frank. "Some test correlates of responses to psychotherapy," J. Consult. Psychol., 1953, 17, 235-41.
- Barron, Frank, "An ego-strength scale which predicts response to psychotherapy," J. Consult. Psychol., 1953, 17, 327-33.
- Barron, Frank, & Leary, Timothy F. "Changes in psychoneurotic patients with and without psychotherapy," J. Consult. Psychol., 1955, 19, 239-45.
- Beck, Samuel J. The Rorschach experiment, ventures in blind diagnosis, New York: Grune and Stratton, 1960, Chapt. 12, "Who can change," pp. 202-209.
- Becker, Ernest. Zen: A rational critique, New York: Norton, 1961.
- Beier, Ernest G. "The effect of induced anxiety on flexibility of intellectual functioning," Psychol. Monogr., 1951, 65, whole no. 326, p. 26.

- Berdie, Ralph F., "Foreward," In Magson, T. M., Hoyt, D. P. Volsky, T. C., and Norman, W. T. Research in Counseling and Casework, U. of Minn., 1957, iv-x.
- Berdie, Ralph F. "Counseling Principles and Presumptions," J. Consult. Psychol., 1959, 6, 175-82.
- Berg, Irwin, A. "Measures before and after therapy," J. Clin. Psychol., 1952, 8, 46-50.
- Blake, Robert R. & Ramsey, Glenn V. (Eds.). Perception, an approach to personality, New York: Ronald, 1951.
- Blatt, Sidney J. "Patterns of Cardiac arousal during complex mental activity," J. Abn. and Soc. Psychol., 1961, 63, 272-82.
- Blatt, S. & Stein, Morris, "Efficiency in problem solving," J. Psychol., 1959, 48, 193-215.
- Block, Jack, & Petersen, Paul. "Some personality correlates of confidence, caution, and speed in a decision situation," J. Abn. Soc. Psychol., 1955, 51, 34-41.
- Blum, Gerald S. Psychoanalytic theories of personality, New York: McGraw-Hill, 1953.
- Bourestom, N. C., & Smith, W. L. "A comparison between fantasy productions and social behavior in experimental group psychotherapy," Group Psychother., 1954, 7, 205-13.
- Braaten, Leif, J. "The movement from non-self to self in client-centered psychotherapy," J. Counseling Psychol., 1961, 8, 20-24.
- Brayfield, Arthur H. "Counseling," Annual Review of Psychol., 1963, 14, 319-350.
- Briskin, Gerald J. "Identification in group therapy," J. Abn. & Soc. Psychol., 1958, 56, 195-98.
- Brock, Timothy C. "Cognitive restructuring and attitude change," J. Abn. & Soc. Psychol., 1962, 64, 264-71.
- Bronfenbrenner, Urie. "The study of identification through interpersonal perception," In R. Tagiuri & L. Petrullo, Person Perception and Interpersonal Behavior, Stanford Univ. Press, 1958, 110-130.
- Brown, R. "Evaluation of psychotherapy in terms of changes in relevant behavior," J. Clin. Psychol., 1960, 16, 93.
- Bruner, Jerome S., Goodnow, J. J., & Austin, George A. A study of thinking, New York: Wiley, 1957.

- Burack, Ben. "The nature and efficacy of methods of attack on reasoning problems," Psychol. Monogr., 1950, 64, whole no. 313, pp. 26.
- Buswell, Guy T. "Patterns of thinking in solving problems," Univ. of Calif. Publ. in Education, 12, 63-148, 1956.
- Butler, John M. "Discussant: Problem of controls," In, Research in Psychotherapy, I, 1959, 44-48.
- Campbell, Donald T. "Factors relevant to the validity of experiments in social setting," Psychol. Bull., 1957, 54, 297-312.
- Campbell, Donald T. "Experimental designs for research on teaching," In N. L. Gage, Ed., Handbook of Research on Teaching, Chicago; Rand McNally, (1963) draft, 1961.
- Cartwright, Desmond S. "Success in psychotherapy as a function of certain actuarial variables," J. Consult. Psychol., 1955, 19, 357-63.
- Cartwright, Desmond, "Note on 'changes in psychoneurotic patients with and without psychotherapy,'" J. Consult. Psychol., 1956, 20, 403-04.
- Cartwright, D. S. "Annotated Bibliography of research and theory construction in client-centered therapy," J. Counsel. Psychol., 1957, 4, 82-100.
- Cartwright, Rosalind D., Seeman, J., & Grummon, D. L. "Patterns of perceived interpersonal relations," Sociometry, 1956, 19, 166-77.
- Cartwright, Rosalind Dymond and Vogel, John L. "A comparison of changes in psychoneurotic patients during matched periods of therapy and no therapy," J. Consult. Psychol., 1960, 24, 121-27.
- Chaplin, J. P., & Krawiec, T. S. Systems and theories of psychology, New York: Holt, Rinehart, and Winston, 1960.
- Chesire, Leone, Saffir, Milton, Thurstone, L. L. "Computing diagrams for the tetrachoric correlation coefficient," Univ. of Chicago, 1933.
- Chown, Shiela M. "Rigidity--a flexible concept," Psychol. Bull., 1959, 56, 195-223.
- Cowen, E. L. "The influence of varying degrees of psychological stress on problem-solving rigidity," J. Abn. & Soc. Psychol., 1952a, 47, 512-19.
- Cowen, E. L. "Stress Reduction and problem-solving rigidity," J. Consult. Psychol., 1952b, 16, 425-28.
- Cowen, Emory L., & Thompson, G. G. "Problem solving rigidity and personality structure," J. Abn. & Soc. Psychol., 1951, 46, 165-76.
- Cronbach, Lee J. "Processes affecting scores on 'understanding of others' and 'assumed similarity'," Psychol. Bull., 1955, 52, 177-93.

- Cronbach, Lee J. "The two disciplines of scientific psychology," Amer. Psychol., 1957, 12, 671-84.
- Cronbach, Lee J. "Proposals leading to analytic treatment of social perception scores," In Tagiuri, R. and Petrullo, L. Eds., Person Perception and Interpersonal behavior, Stanford, Calif., Stanford U. Press, 1958, 353-380.
- Cronbach, Lee J., & Gleser, Goldine C. "Assessing similarity between profiles," Psychol. Bull., 1953, 50, 456-73.
- Curran, Charles A. Personality factors in counseling, New York: Grune & Stratton, 1945.
- Curran, Charles A. "Some preliminary perception experiments related to insight in counseling therapy," In Bier, W. C., Perception in Present Day Psychology, New York: Fordham, 1957, 73-95.
- Curran, Charles A. "Counseling skills adapted to the learning of foreign languages," Bull. of Menninger Clinic, 1961, 25, 78-93.
- DeSaussure, R. "Identification and substitution," Intern. J. Psychol., 1939, 20, 465-70.
- Devane, J., Rimoldi, H. J. A., & Haley, J. V. "Characteristics of the Approach of physicians to the test of diagnostic skills," 1959.
- Devane, J., Rimoldi, H. J. A., & Haley, J. V. "A comparison of the performance of two student groups and physicians in the tests of diagnostic skills, Loyola Psychometric Laboratory, Publ. No. 10, Loyola Chicago, 1960.
- Dewey, J. How we think, Boston: Heath, 1910, rev. 1933.
- Dollard, John, & Miller, N. E. Personality and psychotherapy: An analysis in terms of learning, thinking and culture, New York: McGraw-Hill, 1950.
- Duncan, Carl P. "Recent research on human problem solving," Psychol. Bull., 1959, 56, 397-429.
- Duncker, Karl. "On problem solving," Psychol. Monogr., 1945, 58, 5.
- Dymond, Rosalind F. "Adjustment changes in the absence of psychotherapy," J. Consult. Psychol., 1955, 19, 103-07.
- Edwards, Allen L., & Cronbach, Lee J. "Experimental design for research in Psychotherapy," J. Clin. Psychol., 1952, 8, 51-59.
- Edwards, Allen L. Experimental design in psychological research, New York: Holt, Rinehart, and Winston, 1962.

- Ehrlich, Denuta, & Wiener, D. N. "The measurement of values in psychotherapeutic settings," J. General Psychol., 1961, 64, 359-72.
- Eysenck, H. J. "The effects of psychotherapy: An evaluation," J. Consult. Psychol., 1952, 16, 319-24.
- Eysenck, H. J. "Personality and problem solving," Psychol. Reports, 1959, 5, 592.
- Eysenck, H. J. "Classification and the problem of diagnosis," Handbook of Abnormal Psychology, New York: Basic Books, 1-31, 1961.
- Eysenck, H. J. "The effects of psychotherapy," In Eysenck, H. J. (Ed.) Handbook of Abnormal Psychology: An experimental approach, New York: Basic Books, 697-725, 1961.
- Fairweather, G. W., Simon, R., Gebhard, M. E., Weingarten, E., Holland, J. L., Sanders, R., Stone, G. B., & Reahl, J. E. "Relative effectiveness of psychotherapeutic programs: a multicriteria comparison of four programs for three different patient groups." Psychol. Monogr., 1960, 74, no. 5, pp. 26.
- Farson, Richard E. "Introjection in the psychotherapeutic relationship," J. Counseling Psychol., 1961, 8, 337-43.
- Fatta, Nicholas, A., Mech, Edmund, & Kopos, Ervin. "Some statistical relationships between selected response dimensions and problem-solving proficiency," Psychol. Monogr., 1954, 68, no. 377.
- Fenichel, O. The psychoanalytic theory of neurosis, New York: Norton, 1945.
- Fenichel, Otto, The collected papers of Otto Fenichel, New York: Norton, 1953.
- Ferguson, R. R. "An investigation of behavior of chronic schizophrenics in experimental group psychotherapy," Denver Univ., Unpubl. Ph.D. dissertation, 1956.
- Fey, Wm. F. "Doctrine and experience; Their influence upon the psychotherapist," J. Consult. Psychol., 1958, 22, 403-09.
- Fiedler, Fred E. "Factor Analyses of psychoanalytic, nondirective, and Adlerian therapeutic relationships," J. Consult. Psychol., 1951, 15, 32-38.
- Fisher, Seymour. "Patterns of personality rigidity and some of their determinants," Psychol. Monogr. 1950, 64, whole no. 307, pp. 48.
- Fogliatto, Hermelinda M. "Sequential evaluation of the Wechsler adult intelligence scale," Loyola Psychometric Laboratory, Loyola Univ., Chicago, Illinois, Publication no. 26, 1962.

- Frank, Jerome D. "Problems of controls in psychotherapy as exemplified by the psychotherapy research project of the Phipps Psychiatric Clinic," In Research in Psychotherapy, I., E.A. Rubinstein, and M. B. Parloff, Eds., 1959, 10-26.
- Frank, Jerome D. Persuasion and healing: A comparative study of psychotherapy, Baltimore: Johns Hopkins Press, 1961, pp. 282.
- Frenkel-Brunswik, Else. "Intolerance of ambiguity as an emotional and perceptual personality variable," J. Personality, 1949, 18, 108-43.
- Frenkel-Brunswik, Else. "Personality theory and perception," In Blake, R. R. and Ramsey, G. V. (Eds.) Perception, an approach to personality, New York: Ronald, 1951, 356-420.
- Freud, S. The ego and the id, London: Hogarth Press, 1927.
- Fulkerson, Samuel C., & Barry, John R. "Methodology and research on the Prognostic use of psychological tests," Psychol. Bull., 1961, 58, 177-204.
- Furneaux, W. D. "Intellectual abilities and problem-solving behavior," in Eysenck, H. J., Handbook of Abnormal Psychology, New York: Basic Books, 1961, 167-192.
- Gagne, R. M. "Problem solving and thinking," Annual Review of Psychol., 1959, 10, 147-72.
- Gagne, Robert M., & Paradise, N. E. "Abilities and learning sets in knowledge acquisition," Psychol. Monogr., 1961, 75, no. 518.
- Gaier, Eugene L. "Selected personality variables and the learning process," Psychol. Monogr., 1952, 66, whole no. 349, pp. 28.
- Gallagher, James J. "MMPI changes concomitant with client-centered therapy," J. Consult. Psychol., 1953, 17, 334-38.
- Gendlin, Eugene T. "Client-centered developments and work with schizophrenics," J. Counseling Psychol., 1962, 9, 205-212.
- Gendlin, E. T., & Shlien, J. M. "Immediacy in time attitudes before and after time-limited psychotherapy," J. Clin. Psychol., 1961, 17, 69-72.
- Gendlin, E. T., Jenney, R. H., & Shlien, M. J. "Counselor ratings of process and outcome in client-centered therapy," J. Clin. Psychol., 1960, 16, 210-13.
- Glad, Donald D. Operational values in psychotherapy, New York: Oxford Univ. Press, 1959.
- Glad, D. D., Smith, W. W., & Glad, V. M. "Behavior factors reactions to leader emphases upon feelings or social expressions," Int. J. Soc. Psychiat., 1957, 3, 129-32.

- Glaser, Robert, and Klaus, David J. "Proficiency measurement: Assessing human performance," In R. M. Gagne (Ed.) Psychological principles and system development, New York: Holt, Rinehart, and Co., 1962, 419-76.
- Glaser, Robert, Damrin, Dora E., & Gardner, Floyd M. "The tab item: a technique for the measurement of proficiency in diagnostic problem solving tasks," Educ. and Psychol. Meas., 1954, 14, 283-93.
- Glaser, Robert, & Schwarz, P. A. "Scoring problem solving test items by measuring information," Educ. and Psychol. Meas., 1954, 14, 665-70.
- Good, Carter, V., & Scates, D. E. Methods of research: educational psychological sociological, New York: Appleton-Century-Crofts, 1954.
- Goodman, Leo A. "Kolmogorov-Smirnov tests for psychological research, Psychol. Bull., 1954, 51, 160-68.
- Graham, Stanley R. "Patient evaluation of the effectiveness of limited psychoanalytically-oriented psychotherapy," Psychol. Reports, 1958, 4, 231-34.
- Guilford, J. P. Psychometric methods, New York: McGraw-Hill Book Co., Inc., 1954, pp. 11-16.
- Gunn, Harry E. "An analysis of thought processes involved in solving clinical problems," Ph.D. dissertation, Loyola, 1962.
- Haggard, Ernest A. "Psychological causes and results of stress," Chapter 21, Human Factors in Undersea Warfare, 1949, 441-61.
- Haimowitz, Natalie R., & Haimowitz, M. L. "Personality changes in client centered therapy," In W. Wolff, & J. A. Precker (Eds.) Success in Psychotherapy, New York: Grune & Stratton, 1952, 63-93.
- Haley, John V. "The effect of learning on performance in the test of diagnostic skills," Psychmet. Lab. Publ. 11, Loyola University, 1960, pp. 50.
- Harris, Robert A. "The effect of stress on rigidity of mental set in problem solution," Unpubl. Ph.D. diss., Harvard U., 1950.
- Harris, Robert E., & Thompson, Clare W. "The relation of emotional adjustment to intellectual function-a note," Psychol. Bull., 1947, 44, 283-87.
- Harris, Theodore L., & Schwahn, W. E. The learning process, selected readings, New York: Oxford Univ. Press, 1961.
- Hartmann, Heinz, Kris, E., & Loewenstein, R. M. "Comments on the formation of psychic structure," Psychoanalytic study of the child, 1946, 2, 11-38.
- Hartmann, Heinz, Ego Psychology and the problem of adaptation, New York: International Universities Press, Inc., 1958.

- Hartmann, Heinz. "The development of the ego concept in Freud's work," In M. Levitt (Ed.) Readings in psychoanalytic Psychology, New York: Appleton-Century, Crofts, 1959.
- Hayne, M. L. "An inverse factor analysis of behavior of paranoid schizophrenics," Denver Univ. Unpubl. Ph.D. dissert., 1958.
- Healy, Wm., Bronner, A. F., Bowers, A. M. The structure and meaning of psychoanalysis, Knopf: New York, 1930.
- Heine, Ralph W., & Trosman, H. "Initial expectations of the doctor-patient interaction as a factor in continuance in psychotherapy," Psychiatry, 1960, 23, 275-78.
- Helmstadter, Gerald C., "An empirical comparison of methods for estimating profile similarity," Educ. and Psychol. Meas., 1957, 17, 71-82.
- Hendrick, I. "Early development of the ego: Identification in infancy," Psa. Quart., 1951, 20, 44-61
- Herr, Vincent V. "Comments" In Standal, Stanley W. and Corsini, R. J., Critical incidents in psychotherapy, Englewood Cliffs, N.J.: Prentice-Hall, 1959.
- Humphrey, G. Thinking: An introduction to its experimental psychology, New York: Wiley, 1951.
- Hunt, J. McV. "The problem of measuring the results of psychotherapy," Psych. Service Center J., 1, 122-35, 1949.
- Imber, Stanley D., Frank, Jerome D., Nash, Earl H., Stone, Anthony R., & Gliedman, Lester H. "Improvement and amount of therapeutic contact: An alternative to the use of no-treatment controls in psychotherapy." J. Consult. Psychol., 1957, 21, 309-15.
- James, William. The principles of psychology, I, Chapter 9, "The stream of thought," New York: Dover Publish. Co., 1890.
- John, E. R. "Contributions to the study of the problem solving process," Psychol. Monogr., 1957, 71, 447.
- John, E. R., & Rimoldi, H. J. A. Sequential observation of complex reasoning, Amer. Psychol., 1955, 10, 470 (Abstract).
- Johnson, D. M. "Problem solving and symbolic processes," Annual Rev. of Psychol., 1950, 1, 297-310.
- Johnson, D. M. The psychology of thought and judgment, New York: Harper, 1955.
- Johnson, Donald M. "Serial analysis of thinking," Annal of the New York Academy of Sciences, 1960, 91, 66-75.



- Kanfer, Frederick H. "Comments on learning in psychotherapy," Psychol. Reports, Monogr. Supple., 1961, 6-9, 9, 681-99.
- Katz, Martin M, Lorr, Maurice, & Rubinstein, Eli A. "Remainder patient attributes and their relation to subsequent improvement in psychotherapy," J. Consult. Psychol., 1955, 22, 411-13.
- Kauffman, P. E., & Raimy, V. C. "Two methods of assessing therapeutic progress," J. Abn. & Soc. Psychol., 1949, 44, 379-85.
- Kelly, George A. The psychology of personal constructs, Vol. I., New York: Norton, 1955.
- Kempler, Hyman L. "Self-confidence and problem-solving rigidity," J. Clin. Psychol., 1962, 18, 51.
- Kendler, Howard H., & Kendler, T. S. "Vertical and horizontal processes in problem solving," Psychol. Review, 1962, 69, 1-16.
- Kirtner, Wm. L., & Cartwright, D. D. "Success and failure in client-centered therapy as a function of initial in-therapy behavior," J. Consult. Psychol., 22, 1958, 329-33.
- Kirtner, William L. "Client personality and problem solving approach as related to success and failure in client-centered therapy," Unpubl. doctoral dissertation, Univ. of Chicago, 1959.
- Kohler, Wolfgang, The mentality of apes, New York: Harcourt, Brace, 1927.
- Korchin, S. J., & Levine, S. "Anxiety and verbal learning," J. Abn. & Soc. Psychol., 1957, 54, 234-40.
- Lanzetta, John T., & Kanareff, Vera T. "Information cost, amount of payoff, and level of aspiration as determinants of information seeking and decision making," Behavioral Science, 1962, 7, 459-72.
- Lazerte, M. E. "The development of problem-solving ability to arithmetic," Toronto: Clark and Co., 1933.
- Lennard, Henry L., Bernstein, Arnold, Hendin, Helen C., & Palmore, Erdman B. The anatomy of psychotherapy: System of communication and expectation, New York: Columbia U. Press, 1960.
- Lorr, Maurice, "Classification of the behavior disorder," Annual Review of Psychology, 12, 195-216, 1961.
- Lorr, Maurice, McNair, D. M., Michaux, W. W., & Raskin, A. "Frequency of treatment and change in psychotherapy," J. Abn. & Soc. Psychol., 1962, 64, 281-92.
- Luchins, Abraham S. "Mechanization in Problem solving, the effect of Einstellung," Psychol. Monogr., 1942, 54, whole no. 248, 95pp.

- Lykken, D. T. "A method of actuarial pattern analysis," Psychol. Bull., 1956, 53, 102-07.
- Maccoby, Eleanor E., & Wilson, W. C. "Identification and observational learning from films," J. Abn. & Soc. Psychol., 1957, 55, 76-87.
- Magoon, Thomas M., Hoyt, D. P., Volsky, T. C., & Norman, W. T. "Research in counseling and case work: Theory, methodology, and outcome," Student Counseling Bureau, publ., Univ. of Minn., 1957.
- Maslow, A. H. Motivation and personality, New York: Harper, 1954.
- Maslow, Abraham H. Toward a psychology of being, New York: Van Nostrand, 1962
- Manual, Compensating polar planimeter, German: Keuffel and Esser Co., 1957.
- McDavid, John W. "Effects of ambiguity of environmental cues upon learning to imitate," J. Abn. & Soc. Psychol., 1962, 65, 381-86.
- McGee, Thomas F. "Changes in inter-personal fantasy functioning associated with two therapeutic techniques," Unpubl. Doctoral dissertation, Univ. of Chicago, 1960.
- McGinnies, E. "Emotionality and perceptual defense," Psychol. Rev., 1949, 56, 244-51.
- McNemar, Quinn, Psychological statistics, New York: Wiley & Sons, 1955.
- McQuitty, Louis L. "Theories and methods in some objective assessments of psychological well-being," Psychol. Monogr., 1954, 68, whole no. 385.
- Menninger, Karl. Theory of psychoanalytic technique, New York: Basic Books, 1958.
- Merrifield, P. R., Guilford, J. P., Christensen, P. R., & Frick, J. W. "The role of intellectual factors in problem solving," Psychol. Monogr., 1962, 76, whole no. 529, pp. 21.
- Messick, Samuel. "Personality structure," Annual Review of Psychology, 1961, 12, pp. 93-128.
- Messick, S., & Ross, John (Eds.) Measurement in personality and cognition, New York: Wiley, 1962.
- Meyer, M. L., & Partipilo, Michael A. "Examiner personality as an influence on the Rorschach test," Psychol. Reports, 9, 221-22, 1961.
- Mohrbacker, J. W. "The diagnostic approach of three disciplines to minimal intracranial pathology in children," Ph.D. dissertation, Loyola, 1961.

- Moore, O. K. "Problem solving and the perception of persons," In Tagiuri, R. and L. Petrullo, Eds., Person perception and interpersonal behavior, 1958, 131-50.
- Moreno, J. O. "Discussion of Snyder's "The present status of psychotherapeutic counseling," Psychol. Bull., 1947, 44, 564-67.
- Morgan, C. Lloyd. An introduction to comparative psychology, New York: Scribner's, 1898.
- Mosak, Harold H. "Evaluation in psychotherapy: A study of some current measures," Unpubl. Doct. Dissert., Univ. of Chicago, 1950.
- Mosak, Harold H. "Problems in the definition and measurement of success in psychotherapy," Success in psychotherapy, Wolff, W., & Precker, J. A. (Eds.), 1952, pp. 1-25.
- Mowrer, O. Hobart, and 21 contributors. Psychotherapy: Theory and research. The Ronald Press, New York, 1953.
- Munroe, Ruth L. "Intellectualizing techniques in psychotherapy," In Burton, Arthur (Ed.), Case studies in counseling and psychotherapy, Englewood Cliff, N.J.: Prentice-Hall, 1959, 382-404.
- Murray, E. J. "The content-analysis method of studying psychotherapy," Psychol. Monogr., 1956, 70, whole no. 420.
- Nichols, Robert C., & Beck, K. W. "Factors in psychotherapy change," J. Consult. Psychol., 1960, 24, 388-99.
- Nunnally, Jum. "The analysis of profile data," Psychol. Bull., 1962, 59, 311-19.
- Nuttin, Joseph. "Personality," Annual Review of psychology, 1955, 6, 161-86.
- O'Brien, Michael J. Differential effects of anxiety on problem solving. Cath. U. Press, Washington, 1957.
- Packard, Vance. The Status seekers, New York: Pocket Books, 1959.
- Parloff, Morris B. "Therapist-patient relationships and outcome of psychotherapy," J. Consult. Psychol., 1961, 25, 29-38.
- Payne, R. W. "Cognitive abnormalities," In Eysenck, H. J., Handbook of Abnormal Psychology, New York: Basic Books, 1961, 193-261.
- Phillips, E. Lakin. Psychotherapy, a modern theory and practice. Englewood Cliffs, N. J.: Prentice-Hall, 1956.
- Piaget, Jean. Judgment and reasoning in the child. New York: Harcourt, Brace, 1952.

- Raimy, V. C. "Self-reference in counseling interviews," J. Consult. Psychol., 1948, 12, 153-63.
- Rakusin, John M. "The role of Rorschach variability in the prediction of client behavior during psychotherapy," In W. U. Snyder (Ed.) Group Report of a Program of Research in Psychotherapy, Penn., Penn. State College, 1953, 60-74.
- Rapaport, David. Organization and pathology of thought, New York: Columbia University Press, 1940.
- Ray, Wilbert S. "Complex processes for use in human problem-solving research," Psychol. Bull., 1955, 52, 134-40.
- Reznikoff, Marvin, & Toomey, L. C., Evaluation of changes associated with psychiatric treatment, Springfield, Ill.: C.C. Thomas, 1959, pp. 132.
- Rimoldi, H. J. A. "A technique for the study of problem solving," Educ. & Psychol. Meas., 1955, 15, 450-61.
- Rimoldi, H. J. A. "Problem solving as a process," Educ. & Psychol. Meas., 1960, 20, 449-60.
- Rimoldi, H. J. A. "The test of diagnostic skills," J. Med. Educa., 1961a, 36, 73-79.
- Rimoldi, H. J. A. "L'Etude des processus psychologiques," Le Travail Humain, 1961b, 3-4, 225-34.
- Rimoldi, H. J. A., Devane, J., & Haley, J. "Characterization of processes," Educ. & Psychol. Meas., 22, 1961, 383-92.
- Rimoldi, H. J. A., & Haley, J. "Sequential evaluation of problem solving processes," Loyola Psychometric Lab., Public. No. 22, 1962.
- Rimoldi, H. J. A., Meyer, R. A., Meyer, M. L., & Fogliatto, H. "Psychobiological mechanisms in complex mental processes and their changes with age," Loyola Psychometric Lab., Publ. no. 24, 1962.
- Rimoldi, H. J. A., & Grib, T. F. "Pattern analysis," British J. of Statistical Psychol., 1960, 13, 137-49.
- Rimoldi, H. J. A., Fogliatto, H. M., Haley, J. V. The test of diagnostic skills, Loyola Psychometric Lab. Publ. 25, 1962a.
- Rimoldi, H. J. A., Fogliatto, H. M., Haley, J. V., Reyes, I. O., Erdmann, J. B., Zacharia, R. M. Training in problem solving, Loyola Psychometric Laboratory, Loyola, 1962b.
- Robbins, L. L., & Wallerstein, R. S. "The psychotherapy research project of the Menninger Foundation," I. Orientation, Bull. Menninger Clin. 1956. 20, 223-225.

- Robbins, L. L., & Wallerstein, R. S. "The research strategy and tactics of the psychotherapy research project of the Menninger Foundation and the problem of controls," In Research in Psychotherapy, I, 1959, 27-43.
- Robertson, Malcolm H. "Change and receptiveness to psychotherapy," J. Consult Psychol., 1957, 21, 498.
- Rogers, Carl R., Client-centered therapy, Boston: Houghton Mifflin Co., 1951.
- Rogers, Carl R. On becoming a person, Boston: Houghton Mifflin Co., 1961.
- Rogers, Carl R. "The necessary and sufficient conditions of therapeutic personality change," J. consult. Psychol., 1957, 21, 95-112
- Rogers, Carl R. "A process conception of psychotherapy," Amer. Psychol., 1958, 13, 142-49.
- Rogers, Carl R., & Dymond, R. F. (Eds.) Psychotherapy and personality change, Chicago: Univ. of Chicago Press, 1954.
- Rosenthal, David. "Changes in some moral values following psychotherapy," J. consult. Psychol., 1955, 19, 431-36.
- Rosenweign, Saul. "A transvaluation of psychotherapy: A reply to Hans Eysenck," J. Abn. & Soc. Psychol., 1954, 49, 298-304.
- Roth, Irvin. "The effect on outcome of client's initial approach to life problems in psychotherapy," Unpubl. disseration, Univ. of Chicago, 1960
- Rotter, J. B. "Psychotherapy," Annual Review of Psychol., 1960, 11, 381-414.
- Rubinstein, Eli A., & Parloff, Morris B. (Eds.) Research in psychotherapy, A.P.A., 1959.
- Shands, Harley C. Thinking and psychotherapy. Cambridge, Mass., 1960.
- Sargent, Helen, D. The insight test, a verbal projective test for personality study. New York: Grune and Stratton, 1953.
- Saupe, Joseph L. "Trouble shooting electronic equipment," Ph.D. Dissertation, Univ. of Illinois, Urbana, 1954.
- Sawrey, Wm. L., Keller, Leo, & Conger, John J. "An objective method of grouping profiles by distance functions and its relation to factor analysis," Educ. and Psychol. Meas., 1960, 20, 651-73.
- Schilder, Quoted from Healy, Wm. et. al., The structure and meaning of psychoanalysis, New York: Knopf, 1930.
- Schrier, Harvey. "The significance of identification in therapy," Amer. J. of Orthopsychiatry, 1953, 23, 585-604.

- Schroder, H. M., & Rotter, J. B. "Rigidity as learned behavior," J. Exper. Psychol., 1952, 44, 141-50.
- Seeman, Julius. "Psychotherapy," Annual Review of Psychology, 1961, 12, 157-194.
- Seeman, Julius. "Psychotherapy and perception behavior." J. clin. Psychol., 1962, 18, 34-37.
- Seeman, J. & Raskin, N. J. "Research perspectives in client-centered therapy," In Mowrer, O. H. (Ed.) Psychotherapy: theory and research. New York: Ronald, 1953, 205-234.
- Senders, Virginia L. Measurement and statistics. New York: Oxford U. Press, 1958.
- Shoben, Edward J., Jr. "Psychotherapy as a problem in learning theory," Psychol. Bull., 1949, 46, 366-392.
- Siegel, Sidney. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill, 1956.
- Simon, H. A., & Simon, Peter A. "Trial and error search in solving difficult problems: Evidence from the game of chess," Behavioral Sciences, 1962, 7, 425-29.
- Sinha, Durganand, & Singh, T. Raj. "Manifest anxiety and performance on problem solving tasks," J. consult. Psychol., 1959, 23, (Extended report, 6pgs.).
- Smith, W. L., & Glad, D. D. "Client reactions to therapist operations in controlled group situations," Group. Psychotherapy, 1956, 9, 18-34.
- Snyder, Wm. U. "The present status of psychotherapeutic counseling," Psychol. Bull., 1947, 44, 297-386.
- Snyder, Wm. U. Group report of a program of research in psychotherapy, Penn State College, 1953.
- Snyder, Wm. U. The psychotherapy relationship. New York: Macmillan, 1961.
- Snygg, Donald, & Combs, A. W. Individual behavior: a new frame of reference for psychology. New York: Harpers, 1949.
- Strupp, Hans, H. "The effect of the psychotherapist's personal analysis upon his technique," J. Consult Psychol., 1955, 19, 197-204.
- Strupp, Hans H. "An objective comparison of Rogerian and psychoanalytic techniques," J. Consult. Psychol., 1955, 19, 1-7.
- Strupp, Hans H. "Psychotherapeutic technique, professional affiliation and experience level," J. Consult. Psychol., 1955, 19, 97-102.

- Strupp, Hans H. "A multidimensional comparison of therapist activity in analytic and client-centered therapy." J. Consult. Psychol., 1957, 21, 301-08
- Strupp, Hans H. "Patient-doctor relationships: the psychotherapist in the therapeutic process," In Bachrach, Arthur J., Experimental foundations of clinical psychology, New York: Basic Books, 1962, pp. 576-615.
- Strupp, Hans H., & Luborsky, Lester (Eds.) Research in psychotherapy II, Washington, A.P.A., 1962.
- Szasz, Thomas S. "The myth of mental illness," Amer. Psychol., 1960, 15, 113-18.
- Tagiuri, Renato, & Petrullo, Luigi (Eds.) Person perception and interpersonal behavior, Stanford: Stanford Univ. Press, 1958.
- Tauber, E. S. "Identification and oral traits in relation to character," Psychiatry, 1939, 2, 55-61.
- Taylor, D. W., & McNemar, O. W. "Problem solving and thinking," Annual Review of Psychology, 1955, 6, 455-482.
- Thetford, Wm. N. "The measurement of physiological response to frustration before and after nondirective psychotherapy," Ph.D. dissertation, Univ. of Chicago, 1949, (Abstract in Amer. Psychol., 1948, 3, 278).
- Thomson, Robert. The psychology of thinking. Baltimore: Penguin Books, 1959.
- Thorndike, E. L. Animal intelligence: Experimental studies. New York: MacMillan, 1911.
- Thorne, Frederick C. "Rules of evidence in the evaluation of the effects of psychotherapy," J. Clin. Psychol., 1952, 8, 38-41.
- Thorne, Frederick C. "Critique of recent developments in personality counseling theory," J. Clin. Psychol., 1957, 13, 234-44.
- Travers, Robert M. W., Marron, Joseph E., & Post, Andrew J. "Some conditions affecting quality, consistency and predictability of performance in solving complex problems," Research Report, Air Force Personnel and Training Research Center--T.N.-55-27, September, 1955.
- Truax, Charles B. "Approaches to unraveling patient and therapist contributions to the therapeutic interaction," Amer. Psychol., 1962, 17, 313 (abstract)
- Underwood, Benton J. Experimental psychology. New York: Appleton-Century-Crofts, 1957.
- Underwood, Benton J. Psychological Research. New York: Appleton-Century-Crofts, 1957.

- Vinacke, W. E. The psychology of thinking. New York: McGraw-Hill, 1952.
- Von Mering, Otto. "Disease, healing, and problem solving: A behavioral science approach," The International J. of Soc. Psychiatry, 1962, 8, 137-48.
- Walker, H. M., & Lev, J. Statistical inference. New York: Holt, Rinehart, and Winston, 1953.
- Walker, Alan M., Rablen, Richard A., & Rogers, Carl R. "Development of a scale to measure process change in psychotherapy," J. Consult. Psychol. 1960, 16, 79-85.
- Watson, Robert I. "Research design and methodology in evaluating the results of psychotherapy," J. Clin. Psychol., 1952, 8, 29-33.
- Watson, Robert I. "Measuring the effectiveness of psychotherapy; problems for investigation," J. Clin. Psychol., 1952, 8, 60-64.
- Wechsler, David. The measurement and appraisal of adult intelligence. Baltimore: Williams and Wilkins Co., 1958.
- Wertheimer, Max. Productive thinking. New York: Harpers, 1959.
- Weiner, A., & Ross, S. "Manifest anxiety and perceptual judgment," J. Abn. & Soc. Psychol., 1956, 44, 83-77.
- Whitaker, Carl A., & Malone, Thomas P. Roots of psychotherapy. New York: Blackstone, 1953.
- White, Robert W. The abnormal personality. New York: Ronald, 1948.
- White, Robert W. "Motivation reconsidered: the concept of competence," In Fiske, D. W., & Maddi, S. R. Functions of varied experience, Homewood, Ill.: Dorsey Press, 1961, 278-325.
- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.
- Wirt, Robert D. "Psychotherapeutic processes," Annual Review of Psychology, 1963, 14, 365-390.
- Wittenborn, J. B. "Contributions and current status of Q methodology," Psychol. Bull., 1961, 58, 132-42.
- Wolberg, Lewis R. The technique of psychotherapy, New York: Grune and Stratton, 1954.
- Wolff, Werner, & Precker, Joseph A. Success in psychotherapy. New York: Grune and Stratton, 1952.
- Wyatt, Frederick, "Some remarks on the place of cognition in ego psychology," J. Projective Tech., 1953, 17, 144-50.



- Wyatt, Frederick, "Therapeutic effort and therapeutic situation," Amer. J. of Orthopsychiatry, 1957, 27, 616-20.
- Zax, Melvin, & Klein, Armin. "Measurement of personality and behavior changes following psychotherapy," Psychol. Bull., 1960, 57, 435-48.
- Zolik, Edwin S., & Hollon, Thomas. "Factors characteristic of patients responsive to brief psychotherapy," Amer. Psychol., 1960, 15, 387 (Abstract). (Mimeo reprint of the study was obtained from the authors).

Approval Sheet

The dissertation submitted by Marv L. Meyer has been read and approved by a board of five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

May 29, 1963

Date

Frank H. Hobbler

Signature of Advisor